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A HANDBOOK

TO THE

BIRDS OF BRITISH BURMAH,

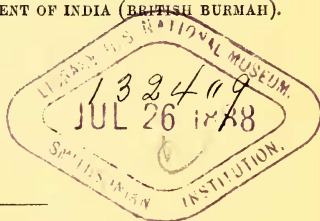
INCLUDING THOSE FOUND IN THE ADJOINING

STATE OF KARENNEE.

BY

EUGENE W. OATES,

EXECUTIVE ENGINEER, PUBLIC WORKS DEPARTMENT OF INDIA (BRITISH BURMAH).



VOL. II.

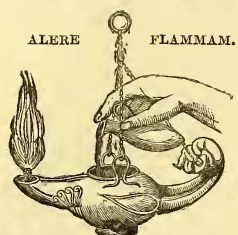
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ERRATA.

- Vol. I. p. 46, line 4, before *Jerd. B. Ind. ii. p. 15*, read **Pyctorhis sinensis**.
„ 94, line 8 from bottom, for *P. orientalis* read *A. orientalis*.
„ 107, line 18, after **Motacilla sutoria** read *Penn.*
„ 163, line 16 from bottom, for **Budytes calaratus** read **Budytes calcaratus**.
„ 329, line 7, before *Salvad. Ucc. Born. p. 183*, read **Arachnothera modesta**.
„ 339, line 4, before *Strickland, P. Z. S. 1841, p. 29*, read **Prionochilus percussus**.
„ 345, line 7, before *Jerd. B. Ind. ii. p. 398*, read **Carpodacus erythrinus**.
„ 348, line 3, before *Jerd. B. Ind. ii. p. 366*, read **Passer montanus**.
„ 411, line 10, for **TRACHEOPHONÆ** read **OLIGOMYODÆ**.
Vol. II. p. 22, line 6 from bottom, for *C. temminckii* read *L. temminckii*.
„ 220, line 6, for *C. vespertina* read *T. vespertinus*.
„ 220, line 12, for *C. amurensis* read *T. amurensis*.
„ 258, line 15 from bottom, before *Jerd. B. Ind. ii. p. 757*, read **Botaurus stellaris**.
„ 281, line 2, for **ANAS LEUCOPTERA** read **ANAS SCUTULATA**.
„ 288, after **Order XI. COLUMBÆ** insert Family **COLUMBIDÆ**.

HANDBOOK

TO THE

BIRDS OF BRITISH BURMAH.

Order II. MACROCHIRES.

Family CYPSELIDÆ.

Subfamily CYPSELINÆ.

Genus CYPSELUS, *Illiger*.

401. CYPSELUS PACIFICUS.

THE WHITE-RUMPED BARRED SWIFT.

Hirundo pacifica, *Lath. Ind. Orn. Suppl.* ii. p. lviii. **Cypselus vittatus**, *Jard. & Selby, Ill. Orn.* iv. pl. 39; *Swinhoe, Ibis*, 1863, p. 253. **Cypselus pacificus**, *Slater, P. Z. S.* 1865, p. 599; *Salvad. Ucc. Born.* p. 119; *Bl. B. Burm.* p. 84; *Hume, S. F.* iii. p. 43; *David et Oust. Ois. Chine*, p. 69; *Hume & Dav. S. F.* vi. p. 48; *Hume, S. F.* viii. p. 84; *Inglis, S. F.* ix. p. 246.

Description.—*Male and female.* A blackish spot in front of the eye; the whole upper plumage and ear-coverts varying from dark brown to blackish, each feather very narrowly edged with whity brown; a band across the rump white with brown shafts; tail and wings blackish; sides of the head and neck like the upper plumage; chin and throat white, the shafts dark; cheeks, sides of the throat and the whole lower plumage with the under wing-coverts brown, each feather fringed with white and subterminally darker brown; the white of the throat merges gradually into the surrounding brown parts; with age the narrow pale tippings to the upper plumage have a tendency to disappear, and the fringes below to become broader.

Iris brown; bill black; mouth flesh-colour; feet pinkish; claws dark horn.

Length 7·25 inches, tail 3·3, wing 7·3, tarsus ·45, bill from gape ·8. The female is of the same size.

A closely allied species is *C. leuconyx*, which differs chiefly in being smaller, the wing usually not exceeding 6·2 inches. It occurs in some parts of India.

I observed the White-rumped Barred Swift at various localities in the Pegu Division, and Mr. Davison met with it in the southern half of Tenasserim. Birds of such immense power of flight as these Swifts are, however, not likely to be local; and I have no doubt that this fine Swift will be found to occur not only over the whole of Tenasserim, but also over the whole of British Burmah.

This species is met with, according to season, from Siberia and Japan down to Australia. Materials for tracing its migrations are, however, wanting. Its western limit in Siberia, so far as is at present known, is Lake Baikal, where it meets *C. apus*. Further south its western limit is Cachar and Tipperah.

These Swifts are found in large flocks, generally flying at a vast height. I have only once seen them, in the course of many years, flying low enough to be within gunshot. I have noticed them during the greater part of the year, but I do not think that any remain in this country to breed. Their breeding-haunts appear to be the islands off the coast of Southern China; here Mr. Swinhoe observed them nesting in the holes of houses, often under eaves, and in many places in the crevices of rocks.

402. CYPSELUS SUBFURCATUS.

THE WHITE-RUMPED BLACK SWIFT.

Cypselus subfurcatus, *Bl. J. A. S. B.* xviii. p. 807; *Swinhoe, Ibis*, 1863, p. 254; *Selater, P. Z. S.* 1865, p. 602; *Salvad. Ucc. Born.* p. 118; *Hume, S. F.* ii. p. 524; *David et Oust. Ois. Chine*, p. 69; *Hume & Dav. S. F.* vi. p. 47; *Hume, S. F.* viii. p. 84; *Kelham, Ibis*, 1881, p. 373. *Cypselus leucopygialis*, *Cass. Proc. Ac. Phil.* v. p. 58.

Description.—*Male and female.* Chin, throat and fore neck dull white, the shafts brown; a band across the rump white, the shafts inconspicuously dark; with these exceptions the whole plumage is very dark blackish brown, the head, back and abdomen being nearly pure glossy black.

The legs and feet vary a good deal; in one male and one female these parts were fleshy, tinged on the toes and claws with dark brown; in the

other male and female they were purplish black ; bill black ; irides dark brown. (*Davison*.)

Length 5·7 inches, tail 2·2, wing 5·3, tarsus ·4, bill from gape ·8. The female is rather smaller. The fork of the tail measures ·3.

The White-rumped Black Swift was observed by Mr. Davison in the south of Tenasserim. It has not yet been noted from any other part of Burmah. In the month of January I once observed a pair of Swifts between Pegu and Rangoon, and found their nest under a wooden bridge at Wanetkone. I was unable to shoot either of the birds, and I am consequently unable to state with certainty whether they were the present species or the allied *C. affinis*. As this latter is pretty certain, however, to occur in Burmah, I append a short description of the bird *.

C. subfurcatus has a rather wide range. It is found in South China, Cochin China, the Malay peninsula, Sumatra, Java, and probably also in Borneo. Mr. Hume states that he has seen a specimen which was shot in India north of Chanda ; and Colonel Godwin-Austen records it from the Khasia hills. It probably occurs throughout Burmah and the Indo-Burmese countries.

It is a resident species in South China ; and Mr. Swinhoe thus describes its nest :—" It builds a nest under the eaves and rafters of houses, much in the form of the House-Martin ; but the exterior coating of it differs in being composed of thin layers of wool, hair, and dried grass, glued one above the other with the saliva of the bird and lined internally with feathers." The nest I found consisted entirely of grass and feathers glued together, was very bulky, but extremely light ; it was fixed to the side of a beam of the bridge, and the entrance was much prolonged and tubular, this portion being fixed to the underside of the flooring of the bridge. In Penang these birds build their nests in large clusters in houses and ruined buildings.

C. acuticauda, Bl., from the north-west Himalayas, has been found in the Andaman Islands, and is consequently not unlikely to visit Burmah as a straggler. It has a wing varying, according to sex, from 6·4 to 6·8 inches in length, and the whole upper plumage is black. It much resembles *C. apus*, the European Swift. *C. pekinensis*, Swinhoe, appears to be the Chinese representative of *C. apus* ; it is said to have occurred in India, and it is likely to straggle into Burmah.

*

CYPSELUS AFFINIS.

Like *C. subfurcatus*, but differing in the following respects :—in having a tail measuring only 1·8 inch, the fork being only ·1 or ·15 ; in having no part of the plumage black except the back, the head, wings and tail being brown, conspicuously lighter than the back ; in having the white of the chin and throat pure, with few or no brown shafts, and in having this white abruptly defined from the surrounding brown, whereas in *C. subfurcatus* the white is sullied and merges gradually into the surrounding dark parts.

403. CYPSELUS INFUMATUS.

THE EASTERN PALM-SWIFT.

Cypselus infumatus, *Sclater*, *P. Z. S.* 1865, p. 602; *Jerdon*, *Ibis*, 1871, p. 355, pl. x.; *Hume*, *Nests and Eggs*, p. 88; *Salvad. Ucc. Born.* p. 119; *Hume*, *S. F.* iii. p. 44; *Wald.* in *Bl. B. Burm.* p. 85; *David et Oust. Ois. Chine*, p. 70; *Hume & Dav. S. F.* vi. p. 48; *Hume*, *S. F.* viii. p. 85; *Bingham*, *S. F.* viii. p. 192, ix. p. 149. *Cypselus tectorum*, *Jerd. Proc. As. Soc. Beng.* 1870, p. 61; *Godwin-Austen*, *J. A. S. B.* xxxix. pt. ii. p. 94. *Cypselus tinus*, *Swinhoe*, *Ibis*, 1870, p. 90.

Description.—*Male and female.* Forehead, crown, nape, back, wings and tail very dark brown or nearly black; rump and upper tail-coverts paler; sides of the head and the whole lower plumage smoky brown.

Bill and feet black; claws dark brown; eyelids plumbeous; iris brown.

Length 5·2 inches, tail 2·3, wing 4·6, tarsus ·3, bill from gape ·55; fork of the tail about ·9. The female is of the same size.

Mr. Blyth states, in his Catalogue of the Birds of Burmah, that *C. palmarum*, a close ally of *C. infumatus*, abounds in the Indo-Chinese countries (in which, no doubt, he includes Burmah), and that *C. infumatus* has not hitherto been detected within the limits of British Burmah. The exact reverse, however, appears to be the case. Mr. Davison and Capt. Bingham in Tenasserim, and Capt. Wardlaw Ramsay and myself in Pegu, found only *C. infumatus* and not *C. palmarum*. This latter may, of course, occur in Burmah, but I consider it very doubtful; and I cannot help thinking that Mr. Blyth was, in this instance, labouring under a mistake. I shall therefore admit only *C. infumatus* into this work.

C. palmarum, or rather *C. batassiensis*, differs in being of a much lighter colour; in having a much longer tail, its total length being about 2·7 inches; in having the fork of the tail much deeper, about 1·3 inches as against ·9 inch in *C. infumatus*; and in having a rather longer wing.

The Eastern Palm-Swift is generally distributed over British Burmah and is a resident species.

It is found in Assam and in the hill-tracts of Eastern Bengal, extending into China; and Dr. Tiraud gives it from Cochin China. It also occurs in the Malay peninsula and in Borneo.

This Swift is very abundant throughout Burmah, being found in small flocks flying at no great height from the ground, and it is a constant resident. Capt. Bingham found the nest of this species in Tenasserim in April, and Mr. Theobald in Pegu in June and July. It is usually a tiny cup of vegetable down and fine feathers agglutinated with saliva to the frond of a toddy-palm. In the hill-tracts of Eastern Bengal this bird makes its nest on the palm-leaves used by the people for the roofs of their houses. The eggs are generally three in number and white in colour.

Subfamily CHÆTURINÆ.

Genus HIRUNDINAPUS, *Hodgs.*

404. HIRUNDINAPUS GIGANTEUS.

THE GIANT SPINE-TAIL.

Cypselus giganteus, *Van Hass.*, *Temm. Pl. Col.* 364. *Chætura gigantea*, *Slater*, *P. Z. S.* 1865, p. 608 (part.); *Hume & Dav. S. F.* vi. p. 46; *Hume, S. F.* viii. p. 84. *Hirundinapus giganteus*, *Salvad. Ucc. Born.* p. 124 (part.).

Description.—*Male and female.* Lores deep black; forehead, crown, nape, hind neck, sides of the head and of the neck, upper tail-coverts, wings and tail deep brown, almost black; back, scapulars and rump pale brown; entire lower surface uniform smoky brown; lower tail-coverts white with black shafts; the whole plumage more or less glossy.

Length 9 inches, tail 3, wing 8, tarsus .7, bill from gape 1.1. The female is very slightly smaller.

Mr. Davison procured one specimen of this bird at Malewoon, in the extreme south of Tenasserim, where it is probably only a straggler.

It occurs in the Malay peninsula, Sumatra and Java, and possibly in Borneo. In Celebes it appears to be replaced by a race which is closely allied to *H. indicus*, and which Dr. Slater has termed *C. gigantea*, var. *celebensis*. In Cochin China it is replaced by *H. cochinchinensis*, Oustalet, a species which I have not been able to examine. If distinct, it is probably the bird which frequents China (David et Oust. Ois. Chine, p. 71).

405. HIRUNDINAPUS INDICUS.

THE INDIAN GIANT SPINE-TAIL.

Acanthylis gigantea (*Temm.*), *apud Jerd. B. Ind.* i. p. 172; *Bl. & Wald. B. Burm.* p. 84; *Wardlaw Ramsay, Ibis*, 1877, p. 459. *Chætura indica*, *Hume, S. F.* i. p. 471, ii. p. 155, iv. p. 286; *Inglis, S. F.* v. p. 17; *Hume & Dav. S. F.* vi. p. 46; *Bourdillon, S. F.* vii. p. 44; *Hume, S. F.* viii. p. 84. *Chætura gigantea*, *apud Legge, Birds Ceylon*, p. 314.

Description.—*Male and female.* Differs from the preceding in having the chin and throat whitish brown and not concolorous with the remainder of the lower plumage, in having a large white spot between the lores and the nostrils, and in having the brown of the back and rump paler.

Legs and feet pale pink or dull purplish pink or livid with a blue tinge; bill black; irides dark brown. (*Davison*.)

Length 9 inches, tail 2·8, wing 7·8, tarsus ·75, bill from gape 1·1. The female is very little smaller.

The Indian Giant Spine-tail was observed by Mr. Davison in the extreme south of Tenasserim, where it appears to occur but sparingly. Colonel Lloyd procured a specimen in Karennee many years ago; and I find on inquiry that this specimen, which is now in Capt. Wardlaw Ramsay's collection, is undoubtedly *H. indicus* and not *H. giganteus*.

This Spine-tail occurs in Southern India, Ceylon and the Andaman Islands. Mr. Inglis procured it in Cachar, and Mr. Davison observed it at Junk Ceylon in the Malay peninsula.

These Swifts are remarkable for their wonderful powers of flight, and they associate in immense flocks. They probably breed in caves and faces of precipices; and, according to Mr. Swinhoe, some birds of this genus make edible nests.

H. nudipes is another species of Spine-tail from the Himalayas. It has the chin, throat and fore neck white, but wants the white spots on the lores. *H. acuticauda*, from Australia, is another large species with the whole forehead white.

Genus RHAPHIDURA, *Oates*.

406. RHAPHIDURA LEUCOPYGIALIS.

THE SMALL BLACK SPINE-TAIL.

Acanthyliis leucopygialis, *Bl. J. A. S. B.* xviii. p. 809. *Cypselus coracinus*, *Müll., Schleg. Handl. Dierk.* i. pp. 221, 479, *Vogels*, pl. ii. fig. 14. *Chætura coracina*, *Slater, P. Z. S.* 1865, p. 614; *Salvad. Ucc. Born.* p. 124; *Hume & Dav. S. F.* vi. p. 45. *Chætura leucopygialis*, *Hume, S. F.* vii. p. 518, viii. p. 84.

Description.—*Male and female.* The whole plumage glossy bluish black, except the rump and upper tail-coverts, which are greyish white with the shafts black; the tail-coverts reach to the tip of the tail, leaving merely the spines exposed.

Legs and feet livid purple; claws and bill black; irides dark brown. (*Davison*.)

Length 4·7 inches, tail 1·7, wing 4·8, tarsus ·35, bill from gape ·6. The female is slightly smaller.

The Small Black Spine-tail was observed by Mr. Davison in the extreme southern portion of Tenasserim.

It occurs in the Malay peninsula, Sumatra and Borneo.

Mr. Davison says :—"In habits they much resemble the greater Spine-tails, shooting down with the rapidity of lightning with a shrill scream, just touching the surface of the water, and rising again with equal rapidity, turning and swooping down again, upstream and downstream for the hour together. It appears to be a forest-loving species, never being found far from it, and frequenting only those streams whose banks are lined with, and those clearings surrounded by, forest."

R. sylvatica occurs in India; it is of small size, and has the abdomen and under tail-coverts pure white.

Genus COLLOCALIA, *G. R. Gray.*

407. COLLOCALIA INNOMINATA.

HUME'S SWIFTLET.

Collocalia innominata, *Hume, S. F.* i. p. 294, ii. p. 160; *Hume & Dav. S. F.* vi. p. 49; *Hume, S. F.* viii. p. 85. *Collocalia linchi*, *Horsf. apud Bl. B. Burm.* p. 85. *Collocalia maxima*, *Hume, S. F.* iv. p. 223.

Description.—*Male and female.* "The adult has the whole of the forehead, crown, occiput, nape, mantle and upper tail-coverts smoky black; the rump a rather pale brown; the feathers dark-shafted; the wings and tail blackish brown, the latter with a distinct bluish lustre towards the tip; the tail, except the external feathers, which are about .05 inch shorter than the penultimate when fully spread, is perfectly square, and therefore when partly closed has the appearance of being somewhat emarginate.

"There is a similar bluish gloss towards the tips of all the later primaries, while on the head and back there is a faint greenish gloss.

"There is a black line which surrounds the eye in front below and behind; a greyish-white spot, conspicuous in good specimens, in the lores just in front of the eye; the rest of the lores, cheeks, ear-coverts, throat, breast, abdomen, vent and lower tail-coverts a dusky grey-brown; all the three latter with the feathers conspicuously dark-shafted; wing-lining and axillaries blackish brown.

"In younger specimens the colours are everywhere lighter, and some immature birds, like the type specimen, show a distinct darker cap.

"In some specimens the rump is greyish white, and the underparts pale brownish grey. But at all ages, in good specimens, the black orbital line,

the greyish-white lores spot, and the darker shafting of the abdomen, vent, lower tail-coverts and rump, coupled with the large size of the species, serve to distinguish it.

“Legs feathered almost to the foot, blackish brown; feet and bill black.

“Length 5·1 to 5·3 inches; tail 2·1 to 2·2; wing 5·2 to 5·5; tarsus ·4 to ·5; bill from gape ·6.” (*Hume & Davison.*)

Hume’s Swiftlet was discovered in the Andaman Islands by Mr. Hume. It appears to be rare there, for only one specimen was procured during Mr. Hume’s voyage.

Mr. Davison met with it in Tenasserim, where, he says, it appears at Mergui, and southwards, from time to time, in moderately large numbers.

It is probably this species which Mr. Blyth notes in the ‘Birds of Burmah’ under the name of *C. linchi* as occurring in Arrakan and Mergui.

Mr. Davison remarks that this Swiftlet “hawks about along the coast, up estuaries, along the course of creeks and rivers, over paddy-fields, and sometimes a little way inland. During the day they usually keep high up and out of shot, but descend lower in the evening. They fly swiftly, and are not always easy to shoot. They come and go, and probably breed on some of the islands of the Mergui archipelago.”

The nest of this Swiftlet, so far as I know, has not yet been discovered by any naturalist.

The true *C. fuciphaga*, from Java, is similar in coloration to *C. innominata*, but differs in being much smaller, the wing never exceeding 5 inches in length. *C. unicolor* and *C. brevirostris*, the former from the Neilgherries and the latter from the Himalayas, are also similar, but smaller again than *C. fuciphaga*.

408. COLLOCALIA SPODIOPYGIA.

PEALE’S SWIFTLET.

Macropteryx spodiopygius, Peale, *Zool. U.S. Expl. Exped., Birds*, 1st edit. p. 176.

Collocalia spodiopygia, Cassin, *U.S. Expl. Exped., Orn.* p. 184, pl. xii. fig. 3; Wallace, *P. Z. S.* 1863, p. 384; Hume, *S. F.* i. p. 296, ii. p. 160; *id.* *Nests and Eggs*, p. 91; Hume & Dav. *S. F.* vi. p. 51; Hume, *S. F.* viii. p. 85.

Collocalia inexpectata, Hume, *S. F.* i. p. 296.

Description.—*Male and female.* The whole upper plumage smoky brown; a band across the rump ashy white, with the shafts darker; wings and tail glossy brown; lower plumage uniform pale smoky brown.

Legs and feet brownish pink; claws brown; bill black; irides deep brown. (*Davison.*)

Length 4·7 inches, tail 2, wing 4·6 to 5, tarsus ·35, bill from gape ·45.

This species may be recognized by its ashy white rump-band. In *C. innominata* there is no band, the whole upper plumage being uniform in colour.

Peale's Swiftlet was procured by Mr. Davison in the southern portion of Tenasserim, where, he says, it is extremely common throughout the year, and it breeds largely in the islands of the Mergui archipelago from Tavoy Island southwards.

It appears to be a permanent resident in the Andaman Islands, where Mr. Hume observed it.

In the British Museum there are specimens from Malacca and from the Mauritius. It appears to have an immense range, for I have also examined specimens from Australia, the Fiji and Friendly Islands and other localities in the Pacific Ocean. Dr. Tiraud states that it breeds on the coast of Cochin China.

Neither Mr. Hume nor Mr. Davison note any thing special about the general habits of this species. I presume they differ in no essential particular from those of *C. innominata*.

Mr. Hume found this Swiftlet breeding in caves in the Andaman Islands. It is this species which makes the edible nests of commerce. He says:—"I found the eggs in a cave on Little Button Island of the Andaman archipelago on the 21st of March, but I do not know whether they have a second brood. The nest, except just at its junction with the rock (where it is brownish), is composed of the most exquisitely silvery-white gelatine. Exteriorly the surface is compact and somewhat roughened in laminae; interiorly it is a network of the finest and whitest threads, reminding one of the *Euplectella*. The true nest, which is pure white, and in shape rather more than half of a shallow cup, is from 2 to 2 $\frac{3}{4}$ inches broad, stands out from 1 $\frac{1}{2}$ to nearly 2 inches from the wall, and varies interiorly in depth from little more than $\frac{1}{2}$ to a full inch. The attachment films and foundation below the true nest, both of which are brown, vary excessively according to the site chosen for the nest: in some they are almost wanting; in others the film extends for an inch on either side beyond the nest, and the foundation below the most projecting point of the true nest may be 1 $\frac{1}{4}$ inches in depth." Sometimes the nests are joined together. The eggs are white, and appear to be two in number.

409. COLLOCALIA LINCHI.

HORSFIELD'S SWIFTLET.

Hirundo fuciphaga, apud Horsf. *Trans. Linn. Soc.* xiii. p. 143. *Collocalia linchi*, Horsf. & Moore, *Cat. Birds Mus. E.I. Co.* i. p. 100; Wallace, *P. Z. S.* 1863, p. 384; Hume, *S. F.* ii. p. 157; *id.* *Nests and Eggs*, p. 89; *Salvad. Ucc. Born.* p. 121; Hume & Dav. *S. F.* vi. p. 49; Hume, *S. F.* viii. p. 85. *Collocalia affinis*, Tytler, *Beavan, Ibis*, 1867, p. 318. *Collocalia fuciphaga*, apud Bl. & Wald. *B. Burm.* p. 85. *Collocalia francica*, apud Legge, *Birds Ceylon*, p. 324.

Description.—*Male and female.* Plumage above entirely glossy bronze-black; chin, throat, breast, sides of the head and sides of the body ashy brown, each feather obsoletely margined paler; abdomen and vent white streaked with brown; under tail-coverts dark brown, margined with white; wings and tail glossy black.

Length 4 inches, tail 1·75, wing 4, tarsus ·3, bill from gape ·4. The female is of about the same size.

Mr. Blyth recorded two species of Swiftlets from Burmah (B. Burm. p. 85). The one which he calls *C. fuciphaga* he identifies with Mr. Ball's bird, which that gentleman describes in the *J. A. S. Beng.* xli. p. 276, and again in 'Stray Feathers,' i. p. 55. Although Mr. Ball speaks of an indistinct white rump-band, no one can entertain any doubt about his birds being the true *C. linchi*. I accordingly enter this species here, more especially as it is very abundant in the Andaman Islands, and is consequently pretty certain to fly over to the Burmese coast.

C. esculenta, a bird from Java and the Malay archipelago, is very close to *C. linchi* both in size and coloration; but it may be known at once by its having white spots on the tail-feathers.

Another section of Swiftlets may be recognized by the rump being pure white. None of them are, however, likely to visit Burmah.

After studying a large series of birds of the genus *Collocalia*, I am of opinion that the plumage is liable to very slight variations only. In the adults the coloration is very constant; and the young differ from the adults only in being paler. The confusion which has hitherto existed among the members of this group appears to be due in great measure to the paucity of specimens in European collections. Mr. Hume has rendered great service to ornithologists in thoroughly working out the Indian members of the group.

Horsfield's Swiftlet occurs, according to Mr. Blyth, in Arrakan and Tenasserim; but Mr. Davison did not meet with it during his travels in the latter Division.

It occurs very abundantly both in the Andaman and the Nicobar Islands.

It is very difficult to ascertain what the distribution of Horsfield's Swiftlet is. In the British Museum there are specimens from Java, Borneo and Cape York on the north coast of Australia. Mr. Hume records it from Johore in the Malay peninsula, and Mr. Wallace from Malacca. It has probably a very wide range like *C. spodiopygia*.

Writing of these birds in the Andaman Islands, Mr. Davison says:—"They are very familiar birds, entering houses and even occasionally trying to form their nests in inhabited rooms. I have known a pair fly into a room and take up their quarters for the night in a corner against the roof, regardless of people passing in and out with lights; generally, however, they roost in company, and one favourite spot is in the Saw-Mills at Chatham Island, Port Blair. Here, towards the close of the day, they assemble in vast numbers, flying in and out of the building, all the while keeping up a continual twitter. It is curious with what pertinacity these birds will return to a place they have once chosen for roosting. Mr. Humfray informed me that a large number of these birds had taken up their sleeping-quarters against the roof of a shed in Viper Island, Port Blair, occupying about a square yard of the surface; this place they continued to occupy till the shed was destroyed, when, of course, they all disappeared; but after a time another shed was built exactly on the same site, and as soon as the roofing was completed, back came all the *Collocaliæ* and reoccupied the same spot on the roof of the new shed as they had occupied in the old; and this spot they were still occupying when I was at Port Blair. It is remarkable the small amount of space that a very large number of these birds will occupy; they all cluster together like a huge swarm of bees, clinging to the bare boards of the roof in a wonderful manner."

It was long thought that this Swiftlet was the one which made the ordinary edible nest held in so much esteem in the China market. Mr. Hume, during his visit to the Andaman Islands, discovered, however, that the nest of Horsfield's Swiftlet was made of moss agglutinated with saliva, and was consequently not the one collected by the nest-farmers for sale. The nest is a shallow, flat-bottomed half-saucer, and it is placed not only in caves, but also inside houses and mills.

Genus MACROPTERYX, *Swains.**

410. MACROPTERYX CORONATUS.

THE INDIAN CRESTED TREE-SWIFT.

Hirundo coronata, *Tick. J. A. S. B.* ii. p. 580, xv. p. 21. **Dendrochelidon coronata**, *Sclater, P. Z. S.* 1865, p. 617; *Jerd. B. Ind.* i. p. 185; *Hume, Nests and Eggs*, p. 92; *id. S. F.* iii. p. 45; *Hume & Dav. S. F.* vi. p. 51; *Legge, Birds Ceylon*, p. 328; *Hume, S. F.* viii. p. 85; *Parker, S. F.* ix. p. 476. **Macropteryx coronatus**, *Bl. B. Burm.* p. 86; *Wardlaw Ramsay, Ibis*, 1877, p. 458.

Description.—*Male.* Lores and a narrow space round the eye black; a very narrow and indistinct line over the eye white; chin, moustache and ear-coverts chestnut; the whole upper plumage and the sides of the neck ashy, tinged with metallic green on the forehead, crown and the longer upper tail-coverts; lower plumage paler ashy, turning to white on the abdomen, vent and under tail-coverts; wing-coverts metallic blue; quills brown, suffused with bluish green; tertiaries albescent; tail metallic greenish brown.

The *female* differs in having no chestnut whatever on the head, the ear-coverts being dark brown, and the chin and moustache ashy like the throat.

Bill black; mouth flesh-colour; eyelids plumbeous; iris dark brown; legs pinkish brown; claws black. In some the iris is reddish hazel.

Length 9 inches, tail 5·2, wing 6·3, tarsus ·3, bill from gape ·8. The female is of the same size.

The Indian Crested Tree-Swift is spread over the whole of British Burmah, except the southern portion of Tenasserim, where it has not yet been met with. Capt. Bingham states that it is common in the Thoung-yeen valley, and Capt Wardlaw Ramsay met with it in Karennee. It is abundant over the whole of Pegu and probably also in Arrakan, and appears to be resident.

It occurs in Siam, but not, so far as is at present known, in the Malay peninsula. It is probably a resident in all the Indo-Burmese countries. It is recorded from numerous localities in India, and it extends into Ceylon.

This Swift is confined to forests and well-wooded localities. It is some-

* The name *Dendrochelidon* is said to have been given by Boie to these Tree-Swifts in the 'Isis' for 1828. I have carefully searched this volume for it, but unsuccessfully. Mr. Gray (Gen. Birds, i. p. 54) also states that he has been unable to find the place where this name was given. In the 'Isis' for 1844, Boie assigns the date of 1832 to the genus, but without referring the reader to the work in which it was described.

what local, being extremely common in some places and entirely absent in others. I have generally found it in large flocks flying about with great speed and frequently resting on the branches of dead trees. It makes a remarkably tiny nest of bits of bark and feathers glued together with saliva, and placed on the side of a horizontal branch. The nest is so minute, that when the bird is sitting it cannot be seen, and the bird appears to be merely perching on the branch. Only one egg is laid, and it is white. The breeding-season in Burmah is probably from April to June.

411. MACROPTERYX LONGIPENNIS.

THE MALAYAN CRESTED TREE-SWIFT.

Hirundo longipennis, Rafin. Soc. Philom. Bull. iii. 1802, p. 153. *Hirundo klecho*, Horsf. Trans. Linn. Soc. xiii. p. 143. *Cypselus longipennis*, Temm. Pl. Col. 83. fig. 1 (descr. orig.). *Dendrochelidon klecho*, Selater, P. Z. S. 1865, p. 616; Kelham, Ibis, 1881, p. 374. *Dendrochelidon longipennis*, Salvad. Ucc. Born. p. 122; Hume & Dav. S. F. vi. p. 52; Hume, S. F. viii. p. 85.

Description.—*Male*. Forehead, crown and upper wing-coverts metallic green, each feather more or less edged with deep blue; nape, sides of the neck, scapulars and the back metallic green, each feather obsoletely margined with blue; rump, the shorter upper tail-coverts and the tips of the scapulars grey; the longer upper tail-coverts greenish brown; lores and cheeks black; ear-coverts chestnut; chin, throat, breast, upper abdomen and sides of the body grey, rather darker than the rump; lower abdomen, vent and under tail-coverts white; quills brown, suffused with blue; the tertiaries whitish; tail greenish at the base, blue elsewhere. Specimens vary much in the amount of blue on the head and wings; in some the blue is entirely absent. The tail and wings also vary; in some green predominates, in others blue.

The *female* differs in having the ear-coverts not chestnut, but a greenish brown.

The *young* appear to have the greater part of the upper plumage tipped with white.

Length 9 inches, tail 4·5, wing 6·5, tarsus ·4, bill from gape ·7. The female appears to be of the same size.

The Malayan Crested Tree-Swift occurs in Tenasserim from the southernmost point up to Mergui and Nwalabo mountain.

It extends down the Malay peninsula, and is found in the islands of Sumatra, Java, Bangka and Borneo.

This species is an inhabitant of the forests. Like the preceding, it

makes a very small nest of feathers, mosses and scraps of bark cemented together by the viscous saliva of the bird. The nest is so small that the bird sits upon the branch, and is able to cover the single large white egg with only the end of her belly (Bernstein, J. für Orn. 1859, p. 183).

412. MACROPTERYX COMATUS.

THE TUFTED TREE-SWIFT.

Cypselus comatus, Temm. *Pl. Col.* 268. *Dendrochelidon comata*, Selater, *P. Z. S.* 1865, p. 617; *Salvad. Ucc. Born.* p. 123; *Hume & Dav. S. F.* vi. p. 51; *Hume, S. F.* viii. p. 85.

Description.—*Male.* Lores black; a narrow line from the base of the culmen continued over the eye to the nape white; ear-coverts chestnut; chin and a broad stripe under the ear-coverts white; forehead, crown, nape, throat and the sides of the head metallic blue; back, rump, upper tail-coverts, sides of the neck, lower throat, breast, abdomen, vent and sides of the body metallic bronze; under tail-coverts and the uppermost tertiaries white; wing-coverts, both upper and lower, metallic blue; wings and tail brown suffused with deep blue, especially on the outer webs.

The *female* differs in having the ear-coverts not chestnut but metallic blue.

Legs and feet purplish pink; bill black; irides dark brown. (*Davison.*)

Length 6·5 inches, tail 3·2, wing 5, tarsus ·3, bill from gape ·65. The female is of about the same size.

The Tufted Tree-Swift was found by Mr. Davison to be rather common in Tenasserim from the extreme south of the Division nearly up to Mergui.

It extends down the Malay peninsula and into Siam, and it occurs in Sumatra, Java, Borneo, Celebes, Timor and the Philippine Islands.

Mr. Davison remarks :—"This species, I found, frequented by preference Tounyahs, or clearings where there were numbers of dead trees standing about, where they could perch and get a good view all round. Sometimes I have seen both species flying about over the top of heavy forest; as a rule they avoid settling on leafy trees. They are not at all shy birds."

Family CAPRIMULGIDÆ.

Subfamily PODARGINÆ.

Genus BATRACHOSTOMUS, *Gould.*

413. BATRACHOSTOMUS AFFINIS.

HODGSON'S FROGMOUTH.

Batrachostomus affinis, *Bl. J. A. S. B.* xvi. p. 1180, xviii. p. 806; *Hume, S. F.* ii. p. 351, iv. p. 376; *Tweedd. P. Z. S.* 1877, p. 426, pl. xlv.; *Hume & Dav. S. F.* vi. p. 53; *Hume, S. F.* viii. p. 85; *Bingham, S. F.* ix. p. 149. **Otothrix hodgsoni**, *G. R. Gray, P. Z. S.* 1859, p. 101, pl. clii.; *Jerd. B. Ind.* i. p. 190; *Hume, Nests and Eggs*, p. 93; *id. S. F.* ii. p. 348. **Batrachostomus hodgsoni**, *Bl. & Wald. B. Burm.* p. 83; *Hume & Dav. S. F.* vi. p. 53; *Hume, S. F.* viii. p. 85.

I have not been able, for want of specimens, to work up this difficult group of birds, and I therefore deem it better to follow the late Marquis of Tweeddale, who has written a most exhaustive monograph of the genus *Batrachostomus*.

According to Lord Tweeddale, the names *B. affinis* and *B. hodgsoni* refer to the same species, and he also adds as a synonym *B. castaneus*, Hume. The accuracy of this latter identification, however, is, I think, open to doubt, and I do not adopt it.

Only three specimens of *Batrachostomus* have been procured in British Burmah and Karennee by reliable collectors. The first was shot by the late Colonel Tickell near Tonghoo and is figured and described by him in his 'Illustrations of Indian Ornithology,' vol. vii.; the second was procured by Capt. Wardlaw Ramsay in Karennee at an elevation of 6000 feet, and the third was obtained by Capt. Bingham in the Thoungyeen valley in Tenasserim.

Colonel Tickell thus describes his bird :—" Iris sepia ; bill fleshy horn ; legs horn. Head, upper back and scapulars bt. umbre, shaded ferruginous on back and mingled with greyish on scaps. : the whole vermiculated crossways, black. Outer webs of two or three largest scapulars white bordered with black. Tertiaries clouded brown, ferruginous and grey, with black vermiculations. Wing-coverts rusty vinous, broadly vermiculated black. Secondaries and primaries, outer webs chestnut rusty with broken narrow bars of black. Inner webs sepia. Tips of primaries pale and mottled. Tail cinnamon-brown, shaded gray marginally and vermiculated black, and crossed with five paler bars (not joining the shafts), subterminal

series (*sic*). The bars are edged black and obscurely vermiculated. All underparts from bill vinous rusty, with a group of white black-margined patches on throat, and another across bottom of breast, below which the colour is paler and broken with rusty and dusky irregular bars; this extends to lower tail-coverts. Lower back and upper tail-coverts as back. A pale tawny supercilium. Lining of wings whitish. Length 9 inches, wing $4\frac{3}{4}$, tail $4\frac{5}{8}$, of which beyond body $2\frac{1}{2}$, bill $\frac{5}{8}$, tarsus $\frac{9}{16}$, middle toe $\frac{5}{8}$." Lord Tweeddale's comment on this is:—"This description refers to the rufous phase, when the upper plumage is traversed and vermiculated by narrow brown lines, while otherwise the bird exhibits the adult markings."

The following is a brief description of the bird shot by Capt. Wardlaw Ramsay in Karennee on the 2nd of April:—

General colour pale rufous; the upper plumage variegated with black; the quills blackish, with rufous bars on the outer webs only; the scapulars and some of the upper wing-coverts blotched with white; the tail irregularly banded and vermiculated with black and two shades of rufous; chin and throat rufous marked with black; remainder of lower plumage a mixture of black and rufous boldly blotched with white. Tail 5·4 inches, wing 5·1, tarsus ·7, bill from gape 1·2, width of gape about 1. Sex male. Iris marbled buff; bill light madder; legs light madder tinged with violet.

This bird is very similar to the type of *B. hodgsoni* in the British Museum, of which the following is a description:—

Adult. Crown and nape black barred with pale rufous; upper plumage a mixture of black and rufous; the feathers of the upper back each with a white bar, those of the lower back each with a white spot; the scapulars blotched with white; quills brown, with rufous bars on the outer webs of the primaries and on both webs of the secondaries; tail barred and vermiculated with black and two shades of rufous; lower plumage chiefly white, sparingly barred with rufous, the pectoral feathers long and ample.

Nestling. Rufous barred with brown, and with some white blotches on the scapulars.

Tail of the adult 5·5 inches, wing 5·3, tarsus ·65, bill from gape 1·15.

The specimen shot by Capt. Bingham in Tenasserim in February is said by Mr. Hume to agree very closely with Col. Tickell's description. The length was 8·5 inches, tail 4·8, wing 4·7, bill from gape 1·14, width of bill at gape 1·27.

I have no doubt myself that all the above specimens belong to one species.

Little is known of the habits and distribution of this species. In addition to the localities quoted above, it has been met with in Sikhim and at Malacca, and it probably occurs in every portion of the intervening country.

The Frogmouths appear to inhabit thick brushwood in heavy forest, and to be entirely crepuscular or nocturnal in their movements. Mr. Bourdillon, writing of the allied *B. moniliger*, says:—"If I am not mistaken, the habits of this bird are very shy and retiring, for it never appears to venture into the open, and only commences calling in the breeding-season some considerable time after dark, and living entirely in dense jungle it is a very difficult bird to secure."

According to Mr. Hodgson's notes, the present species makes a nearly flat nest of lichens and moss overlaid with a soft downy vegetable substance blended into a felt-like mass. It is placed on a horizontal branch of a tree close to its junction with the trunk.

Subfamily CAPRIMULGINÆ.

Genus CAPRIMULGUS, *Linn.*

414. CAPRIMULGUS ASIATICUS.

THE COMMON INDIAN NIGHTJAR.

Caprimulgus asiaticus, *Lath. Ind. Orn.* ii. p. 588; *Jerd. B. Ind.* i. p. 197; *Hume, Nests and Eggs*, p. 97; *id. S. F.* iii. p. 46; *Bl. B. Burm.* p. 83; *Hume & Dav. S. F.* vi. p. 59; *Legge, Birds Ceylon*, p. 343; *Brooks, S. F.* vii. p. 169; *Hume, S. F.* viii. p. 85; *Bingham, S. F.* ix. p. 150.

Description.—*Male.* Of pale but rich coloration; a broad coronal streak black; scapulars richly marked with black and buff; first primary with a round spot on the inner web, not extending up to the shaft; second primary with a larger white spot, also not extending to the shaft; a small buff patch on the outer web; third primary with a large white spot reaching to the shaft; a buff patch on the outer web; fourth primary with a reduced white spot shading off into buff at its edges; a buff patch on the outer web; the other primaries barred black and rufous; outermost tail-feathers with a terminal white patch about 1.5 inch long, the next pair with a terminal white patch about 1 inch long; the next two pairs chiefly black; the central pair like the upper plumage.

The *female* is precisely similar to the male, but the white on wings and tail is hardly so pure.

Bill at base flesh-colour, with a reddish tinge on the upper mandible; tip dark brown; feet pinkish brown; claws horn-colour; edges of eyelids buff; irides brown.

Length 9·5 inches, tail 4·5, wing 6, tarsus ·8, bill from gape 1·2. The female is of about the same size.

I do not think any useful purpose would be served by describing the Nightjars in great detail. Their plumage is so rich and variegated that it almost defies description; I have therefore contented myself with drawing attention to those points which are of real importance, and by which the species may be discriminated.

The present species and the next may be separated from the other Nightjars by the tarsus, which is naked in these two.

The Common Indian Nightjar appears to be generally spread over Arrakan and Pegu, but to be rare in Tenasserim. I obtained it at Thayet-myo, and I observed it to be common round the town of Pegu and the village of Kyeikpadein in Southern Pegu. Mr. Davison did not get it in Tenasserim; but Dr. Armstrong shot one specimen at Amherst, and Capt. Bingham records it from the Thoungyeen valley.

It is spread over the whole peninsula of India and Ceylon, extending still further westwards even to Palestine, as *C. tamaricis* appears to be the same species. It probably occurs throughout the Indo-Burmese countries.

This species is found in low jungle, cultivated ground and the outskirts of forest. During the day it squats on the ground under a bush; but as soon as twilight comes on it becomes very active, flying about in graceful sweeps after moths &c. When disturbed in the daytime it rises with a chuckle, but its usual note at night is like the sound produced by tapping a board rapidly with a stick, or that of a stone scudding over ice. In Burmah it will probably be found to breed in April and May. It lays two eggs on the ground without making any nest; they are pinkish marked with purple and reddish brown.

415. CAPRIMULGUS MONTICOLUS.

FRANKLIN'S NIGHTJAR.

Caprimulgus monticolus, *Frankl. P. Z. S.* 1831, p. 116; *Jerd. B. Ind.* i. p. 198; *Hume, Nests and Eggs*, p. 98; *id. S. F.* iii. p. 46; *Bl. B. Burm.* p. 83; *David et Oust. Ois. Chine*, p. 67; *Davison, S. F.* v. p. 453; *Hume & Dav. S. F.* vi. p. 59; *Hume, S. F.* viii. p. 85; *Bingham, S. F.* ix. p. 151.

Description.—*Male.* Of rather dark colour; first primary with a streak of rufous-white on the outer web and a large patch of white on the inner; second, third and fourth primaries with a patch of white on both webs, reaching right across the feather; no patches on the other quills; the two

outer tail-feathers all white, the tips narrowly brown; the other tail-feathers without any white upon them.

The *female* is paler; the patches on the first four primaries of the same extent as in the male, but rufous in colour; the tail has no white whatever on it, all the feathers being barred with black and rufous.

Bill and gape pale brown, the former dark horny at the tip; iris dark brown; legs and feet pale fleshy brown; claws horny. (*Bingham.*)

Length 10 inches, tail 4·5, wing 7·5, tarsus ·8, bill from gape 1·25. The female is of the same size.

Franklin's Nightjar appears to be locally distributed in British Burmah. Capt. Wardlaw Ramsay observed it at Tonghoo; Mr. Davison procured it at various localities in Tenasserim north of Amherst, and Capt. Bingham in the Thoungyeen valley. There is no other record of its occurrence in Burmah, but it will probably be found to occur in Arrakan.

It is spread over Central and Southern China, and Dr. Tiraud gives it from Cochin China. It is found in the hill-tracts of Eastern Bengal and over the greater portion of the Indian peninsula.

Mr. Davison found the eggs of this species in Tenasserim in March; they were two in number, and were laid on the bare ground in a slight depression at the foot of a tree. In colour they appear to have been very similar to those of *C. asiaticus*.

416. CAPRIMULGUS ALBONOTATUS.

THE LARGE BENGAL NIGHTJAR.

Caprimulgus albonotatus, *Tick. J. A. S. B.* ii. p. 580; *Jerd. B. Ind.* i. p. 194; *Hume, Nests and Eggs*, p. 95; *id. S. F.* iii. p. 45; *Wald. in Bl. B. Burm.* p. 83; *Hume & Dav. S. F.* vi. p. 57; *Cripps, S. F.* vii. p. 257; *Hume, S. F.* viii. p. 85.

Description.—*Male.* General aspect of plumage pale; a broad black coronal streak; broad buff tips to the wing-coverts and scapulars, and patches of black on the scapulars; first primary with a white spot on the inner web and a broad white patch across both webs of the next three primaries; the two outer pairs of tail-feathers with nearly two inches of their tips pure white.

The *female* has the plumage much the same as the male. The white on the tail is tinged with rufous and is less in extent; the marks on the primaries are narrow, ill-defined and rufescent.

Bill pinkish brown, the gape flesh-colour; iris brown; eyelids dark plumbeous, the edges pinkish; feet and claws brown.

Length 13 inches, tail 6·8, wing 8·4, tarsus ·7, bill from gape 1·4. The female is rather smaller, the wing ranging down to 8·1.

The Large Bengal Nightjar is very similar to the next, and is liable to be confounded with it. The two species, in fact, grade into each other with respect to size, and had I more birds available for examination I should probably be led to unite them.

The present bird occurs on the Pegu hills, where I found it not far from the frontier; and Capt. Wardlaw Ramsay procured it at Tonghoo. Mr. Davison does not appear to have met with it in Tenasserim.

It has been observed in the hill-tracts of Eastern Bengal, and it is spread over the greater portion of Northern India.

This species, as far as my own observations go, is confined to the forests on the hills. In India it appears to breed from March to May; and, like the other Nightjars, it lays two eggs on the ground without making any nest.

This species and the next two have the tarsus covered with feathers.

417. *CAPRIMULGUS MACRURUS*.

THE MALAY NIGHTJAR.

Caprimulgus macrurus, *Horsf. Trans. Linn. Soc.* xiii. p. 142; *Jerd. B. Ind.* i. p. 195; *Salvad. Ucc. Born.* p. 117; *Hume, S. F.* iii. p. 46; *Bl. & Wald. B. Burm.* p. 83; *Anders. Yunnan Exped.* p. 588; *Hume & Dav. S. F.* vi. p. 58; *Cripps, S. F.* vii. p. 258; *Hume, S. F.* viii. p. 85; *Bingham, S. F.* ix. p. 150; *Kelham, Ibis*, 1881, p. 376.

Description.—Plumage much the same as in *C. albonotatus*; but the buff tips to the wing-coverts and scapulars narrower, and the black patches on the scapulars larger and much more conspicuous; the lower plumage is also darker, especially on the breast; the main difference, however, lies in its being a smaller bird.

Length 12 inches, tail 6·3, wing 7·2 to 7·8, tarsus ·7, bill from gape 1·4. The female does not appear to vary much from the male in size.

This species varies in size, becoming smaller towards the south. Australian specimens have the wing only 7 inches in length, whereas the average length of the wings of Burmese birds is 7·5 inches.

The Malay Nightjar seems to be generally spread over the whole of British Burmah, except perhaps in the vast grassy plains of the south of Pegu, where it is rare, if not altogether absent.

It has a great range, extending on the south through the Malay peninsula and islands to Northern Australia, and it is found in Cochin China, the Indo-Burmese countries and Bengal.

This Nightjar is an inhabitant of forests and well-wooded localities. It is remarkable for the monotonous and persistent characters of its call, which is uttered all night long. It resembles the word "tuk" repeated five or six times, with a certain metallic ring about it. The eggs of this species have not yet been found.

418. CAPRIMULGUS JOTAKA.

THE JAPANESE NIGHTJAR.

Caprimulgus jotaka, Temm. et Schleg. *Faun. Jap., Aves*, p. 37, pls. xii., xiii.; Wald. in *Bl. B. Burm.* p. 83; *Godw.-Aust. J. A. S. B.* xliii. pt. ii. p. 153; Dav. et Oust. *Ois. Chine*, p. 67; Anders. *Yunnan Exped.* p. 588; Hume & Dav. *S. F.* vi. p. 56; Hume, *S. F.* viii. p. 85; Scully, *S. F.* viii. p. 236. *Caprimulgus indicus*, apud *Bl. B. Burm.* p. 83; Hume & Dav. *S. F.* vi. p. 56.

Description.—*Male*. Of very dark colour, most of the marks on the upper plumage being black; first primary with a white spot on the inner web, not reaching to the shaft; no patch on the outer web; second and third primaries with a patch of white across both webs; fourth primary with a white patch on the inner web and a rufescent one on the outer; in some specimens the patches on the outer webs of the second and third primaries are rufous; all the tail-feathers, except the central ones, with a band of pure white near the tip, about half an inch wide, and the same distance from the tip.

The *female* has the same dark plumage as the male; the patches on the primaries are rufous, small and ill-defined; there is no white whatever on the tail, all the feathers being black barred with rufous.

Length 12 inches, tail 5·5, wing 8·4 to 8·8, tarsus ·65, bill from gape 1·4. The female is of about the same size.

Mr. Blyth recorded *C. indicus* from Burmah; but both Lord Tweeddale and Mr. Hume identify their Burmese specimens with *C. jotaka*. It is not likely that both species occur; and I therefore include only *C. jotaka* in this work. *C. indicus* differs in being smaller, the wing being seldom or never more than 7·6 in length. The white on the tail-feathers in the male is terminal and not subterminal, as in *C. jotaka*. The females can only be separated by size.

I have examined a considerable series of *C. jotaka* from Japan, and find that the wing is never less than 8·4 in length.

The Japanese Nightjar is apparently a rare bird in British Burmah. The late Colonel Lloyd sent a specimen to Lord Tweeddale from Tonghoo; and Mr. Davison met with it in Tenasserim on two occasions only in the south of the Division. I did not observe it in Pegu.

It is spread throughout China, Mongolia, Eastern Siberia and Japan. Dr. Tiraud states that it is common in Cochin China. Dr. Anderson procured it near Bhamo in Native Burmah; Col. Godwin-Austen in the hills of the N.E. frontier, where he found it breeding; and Dr. Scully observed it in Nipal.

Messrs. Blakiston and Pryer remark that the eggs are two in number, white patched with grey, and that they are placed on the ground. Colonel Godwin-Austen found the eggs in May; they were laid close in under a rock by the side of the path on the ground.

Subfamily PODAGERINÆ.

Genus LYNCORNIS, *Gould*.

419. LYNCORNIS CERVINICEPS.

THE BURMESE EARED NIGHTJAR.

Lyncornis cerviniceps, *Gould, Icones Avium*, pt. ii. pl. 4; *Bl. B. Burm.* p. 82; *Wardlaw Ramsay, Ibis*, 1877, p. 459; *Davison, S. F.* v. p. 454; *Hume & Dav. S. F.* vi. p. 60; *Hume, S. F.* viii. pp. 48, 85, ix. p. 120; *Bingham, S. F.* ix. p. 151.

Description.—*Male and female.* Forehead, crown and nape clear buff, very finely vermiculated with black; the ear-tufts black, tipped with buff; general colour of the upper plumage and wings buff, variegated with chestnut and black; tail barred buff and black; throat and breast dark chocolate-brown, the feathers slightly tipped with chestnut; a broad band of white across the throat; lower plumage black, barred with buff.

Iris dark brown; bill light horn-colour; claws light brown; mouth flesh-colour.

Length 16 inches, tail 8·5, wing 12, tarsus ·8, bill from gape 1·7. The female is of the same size.

No description can do justice to this beautiful bird, so I have contented myself with merely indicating the combination of colours on the various parts of the plumage. There is no other species of *Lyncornis* likely to occur in Burmah which can be confounded with the present species, *C. temminckii* of the Malay peninsula being a very much smaller bird.

The Burmese Eared Nightjar is generally spread over British Burmah in suitable localities. I observed it to be very abundant at the foot of the Arrakan hills near Prome; and I was informed by a friend that he had met with it on the Pegu hills not many miles north of the town of Pegu. Colonel Lloyd sent it from Tonghoo; and Captain Wardlaw Ramsay states

that it is very common along the frontier between Thayetmyo and Tonghoo. Mr. Davison found it generally distributed over the better-wooded portions of Tenasserim, and Capt. Bingham in the Thoungyeen valley.

Mr. Blyth records it from Darjeeling; but I do not know on what authority.

This lovely Nightjar frequents hilly country where the forest is dense and the ground broken up by rivers and ravines. It comes out rather late in the evening, and at first flies at a great height. As the darkness deepens it descends and flies quite close to the ground. These birds associate in large flocks; and Capt. Bingham made the discovery that during the day they roost in caves. Mr. Davison found an egg of this bird at Malewoon in January on the ground; it was cream-colour, marked with lilac-grey.

Order III. PICI.

Family PICIDÆ.

Subfamily IÿNGINÆ.

Genus IÿNX *, *Linn.*

420. IÿNX TORQUILLA.

THE COMMON WRYNECK.

Yunx torquilla, *Linn. Syst. Nat.* i. p. 172; *Malh. Mon. Pic.* ii. p. 289, pl. cxxi. fig. 4; *Jerd. B. Ind.* i. p. 303; *Hume, Nests and Eggs*, p. 128; *id. S. F.* iii. p. 75; *Dresser, Birds Eur.* v. p. 103, pl.; *Wardlaw Ramsay, Ibis*, 1877, p. 458; *David et Oust. Ois. Chine*, p. 55; *Hume & Dav. S. F.* vi. p. 149; *Hume, S. F.* viii. p. 88. **Iÿnx torquilla**, *Sundev. Consp. Av. Pic.* p. 107; *Bl. B. Burn.* p. 78; *Biddulph, Ibis*, 1881, p. 49; *Scully, Ibis*, 1881, p. 430; *Oates, S. F.* x. p. 192.

Description.—*Male and female.* General colour of the upper plumage speckled grey; a broad irregular line from the crown down the back black; scapulars irregularly banded with black; the tail with four narrow irregular black bands; the quills with a series of buff spots on both webs,

* *Cf. Wharton, Ibis*, 1879, p. 453.

distinct on the primaries, gradually merging one into the other on the tertiaries; sides of the head, throat, fore neck and breast pale buff, narrowly banded across with black; a dark brown stripe from the eye through the ear-coverts and passing a little beyond them; remainder of the lower plumage very pale buff irregularly banded with black, the bands interrupted and arrow-headed in shape on the abdomen.

Iris hazel; bill brown; legs and feet greenish brown. Dr. Jerdon states that the iris is crimson: this may be the case at times, but generally it is hazel or brown.

Length 7·5 inches, tail 3, wing 3·3, tarsus ·75, bill from gape ·85. The female is of the same size.

The Common Wryneck is a winter visitor to Burmah, arriving in October. I observed it every year near Thayetmyo, and I found it very abundant near Pegu and Kyeikpadein. Capt. Wardlaw Ramsay got it in Karennee both in the hills and plains, but Mr. Davison does not appear to have met with it in Tenasserim. Mr. Blyth received it from Arrakan.

It has a very extensive range. In winter it is found in Southern China, Burmah, the Indo-Burmese countries, the peninsula of India and westwards to Africa. In summer it occurs in Europe, Central and Northern Asia, and to the east as far as Japan. In Cashmeer and the Himalayas generally it appears to be a summer visitor only, whilst to the south of that range of mountains it occurs only in winter.

In Burmah the Wryneck is found in brushwood and in elephant-grass, about the stalks of which it creeps in search of ants; occasionally I have seen it on large trees. It has a loud and well-marked note, but I do not remember to have ever heard it in Burmah. In Europe it nests in the holes of trees, laying several white eggs.

Genus VIVIA, *Hodgs.*

421. VIVIA INNOMINATA.

THE SPECKLED PICULET.

Picumnus innominatus, Burton, *P. Z. S.* 1835, p. 154; *Malh. Mon. Pic.* ii. p. 278, pl. cxvii. fig. 5, 6; *Sundev. Consp. Av. Pic.* p. 105. *Vivia innominata*, Jerd. *B. Ind.* i. p. 300; *Hume, Nests and Eggs*, p. 127; *Bl. B. Burm.* p. 78; *Hume, S. F.* v. p. 351; *Hume & Dav. S. F.* vi. p. 148; *Hume, S. F.* viii. p. 88; *Scully, S. F.* viii. p. 250; *Bingham, S. F.* ix. p. 165; *Hargitt, Ibis*, 1881, p. 223.

Description.—*Male.* Forehead and anterior portion of crown black, each

feather tipped with orange ; remainder of the crown and nape green ; lores and nasal plumes yellow ; back, rump and upper tail-coverts olive-yellow ; wings and coverts brown, broadly edged with olive-yellow ; tail black, the centre pair of feathers with the inner webs nearly entirely white, the three outer pairs of feathers with a large oblique white bar near the tip ; a broad occipital streak and a stripe under the eye and ear-coverts white ; ear-coverts blackish olive ; chin and throat whitish marked with black ; lower plumage yellow boldly spotted with black, the spots turning to bars on the flanks.

The *female* differs in wanting the orange tips to the feathers of the forehead and front portion of the crown, in having the lores whitish, and in having the lower plumage paler yellow.

Male : bill plumbeous black ; irides brown ; feet darkish plumbeous. *Female* : bill plumbeous or dusky plumbeous, lighter below ; irides brown ; feet plumbeous ; claws dusky. (*Scully*.)

Length 4 inches, tail 1·4, wing 2·2, tarsus ·4, bill from gape ·7. The female is of the same size.

The Speckled Piculet was obtained by Capt. Wardlaw Ramsay on the Karin hills east of Tonghoo at an elevation of 2000 feet. Mr. Blyth states that it occurs in Tenasserim ; and this has been confirmed by Capt. Bingham, who procured a specimen in March in the Thoungyeen valley. There is no other record of its occurrence in British Burmah.

It is found in Cachar, the Khasia hills and throughout the Himalayas, as well as in the Wynaad. It has been said to extend into China, where Père David observed it in Fokien, Setchuen and on the frontier of Kokonor ; but Mr. Hargitt informs me that specimens from these localities in the Paris Museum really belong to *V. chinensis*. The same or a closely allied species occurs also in Sumatra.

This small bird, according to Dr. Jerdon, is found in tangled brushwood and among dead and fallen trees in damp spots, hunting about among the decaying bark for various insects. Dr. Scully, however, found it to be more of a tree-bird in Nipal. In the Himalayas it breeds in April and May, laying as many as seven eggs in a hole in a branch of a tree. The eggs are white.

V. chinensis, Hargitt, is a closely allied race, differing in being larger and in having the crown of the head rufescent brown instead of green.

Genus SASIA, *Hodgs.*

422. SASIA OCHRACEA.

THE RUFOUS PICULET.

Sasia ochracea, *Hodgs. J. A. S. B.* v. p. 778; *Jerd. B. Ind.* i. p. 301; *Hume, S. F.* iii. p. 75; *Bl. B. Burm.* p. 78; *Hume & Dav. S. F.* vi. p. 148; *Hume, S. F.* viii. p. 88; *Hargitt, Ibis*, 1881, p. 231. *Picumnoides ochraceus*, *Malh. Mon. Pic.* ii. p. 287. *Picumnoides lachrymosa* (*Lafr.*), *Malh. Mon. Pic.* ii. p. 287. *Picumnus ochraceus*, *Sunder. Consp. Av. Pic.* p. 106.

Description.—*Male.* Forehead golden yellow; crown and nape olive; back and scapulars olive-rufous; rump brighter and tinged with orange; upper tail-coverts and tail black; upper wing-coverts olive; quills dark brown edged with olive, the tertiaries tinged with the colour of the back, the first primary edged with whitish; lores and feathers round the eye dusky; a stripe from the eye over the ear-coverts white; sides of the head and the whole lower plumage orange-rufous; under wing-coverts yellowish white.

The *female* differs in having the forehead orange-rufous, not golden yellow.

The *young* are generally like the adults, but the colours are dingy.

Upper mandible dark brown, lower plumbeous; mouth dusky; eyelids and ophthalmic skin dusky red; iris crimson; legs yellowish red.

Length 3·2 inches, tail 1, wing 2, tarsus ·5, bill from gape ·52. The female is of the same size.

S. abnormis, from the Malay peninsula and islands, differs chiefly in wanting the eye-streak.

I procured the Rufous Piculet in the evergreen forests of the Pegu hills, and Capt. Wardlaw Ramsay met with it on the Tonghoo hills. Mr. Davison observed it in all parts of Tenasserim except on the higher hills. Mr. Blyth notes it from Arrakan.

It occurs in Cachar and the Khasia hills and ranges in the Himalayas from Assam to Nipal.

This tiny Woodpecker is found in forests climbing about bamboos and smaller trees and brushwood, and were it not for the loud tapping it makes it would seldom be noticed. It is said to breed in holes of trees, which is extremely probable, and it may safely be predicted that its eggs will prove to be white.

Subfamily PICINÆ.

Genus THRIPONAX, *Cab. et Hein.*

423. THRIPONAX JAVENSIS.

HORSFIELD'S GREAT BLACK WOODPECKER.

Picus javensis, *Horsf. Trans. Linn. Soc.* xiii. p. 175. **Picus leucogaster**, *Reinv. et Temm., Wagler, Syst. Av., Picus*, sp. 7; *Temm. Pl. Col.* 501; *Sundev. Consp. Av. Pic.* p. 9. **Dryopicus leucogaster**, *Math. Mon. Pic.* i. p. 47, pl. xiii. fig. 4-6. **Hemilophus javensis**, *Wald. Ibis*, 1871, p. 164. **Thripónax javensis**, *Salvad. Ucc. Born.* p. 52; *Hume, S. F.* iii. p. 67; *Wald. Trans. Zool. Soc.* ix. p. 146; *Bl. B. Burm.* p. 75; *Hume & Dav. S. F.* vi. p. 135; *Hume, S. F.* viii. p. 87.

Description.—*Male.* The forehead, crown, nape, occipital crest and a large patch on each side of the base of the lower mandible scarlet; abdomen, vent and sides of the body yellowish white; remainder of the plumage black; the throat and fore neck speckled, the feathers of the flanks near the thighs margined, with white; the inner webs of the quills with a patch of white at their bases.

The *female* differs in wanting the scarlet patches at the base of the lower mandible, and in having the forehead and anterior half of the crown black.

Legs and feet pale plumbeous to leaden blue; iris creamy white, creamy yellow, clear yellow; orbital skin very dark plumbeous; bill black; lower mandible plumbeous blue to dusky plumbeous. (*Davison.*)

Length about 17 inches, tail 7·5, wing 9, tarsus 1·3, bill from gape 2·4. The female is of the same size.

Horsfield's Great Black Woodpecker was procured by Mr. Davison in the extreme south of Tenasserim, at Laynah, Bankasoon and Malewoon; and Mr. Blyth records it from Mergui, much further north.

It occurs in the Malay peninsula, Sumatra, Java, Borneo and the Philippine Islands.

This Woodpecker affects tree-jungle and old clearings, and does not appear to be found in the thicker forests.

The notes of all the Woodpeckers are harsh and loud, and they are all more or less of the same character. A practised field-naturalist can in most cases recognize the Woodpeckers by their calls; but it is impossible to describe them in writing, and consequently nothing further will be said about their notes in this work.

The same may be said of their habits; they all climb trees, and feed

habitually on ants and other insects found in the bark of trees. The eggs of all those that are known are white, and they are laid on the bare wood in holes of trees, the entrance to the nest being in most cases bored by the bird, which appears to know by instinct where a tree is rotten inside. A few species have peculiar habits, and these will be noted in their proper place.

424. THRIPONAX FEDDENI.

THE WHITE-RUMPED BLACK WOODPECKER.

Mulleripicus feddeni, *Blanf., Bl. J. A. S. B.* xxxii. p. 75. **Thriponax jerdoni**, *Cab. et Hein. Mus. Hein.* iv. Heft ii. p. 105 (note); *Sundev. Consp. Av. Pic.* p. 9. **Thriponax crawfurdi**, *J. E. Gray, apud Bl. B. Burm.* p. 75; *Hume, S. F.* iii. p. 66; *Hume & Dav. S. F.* vi. p. 134; *Hume, S. F.* viii. p. 87. **Thriponax feddeni**, *Hume, S. F.* viii. p. 409; *Bingham, S. F.* ix. p. 162; *Oates, S. F.* x. p. 190.

Description.—*Male.* Forehead, crown, nape, a short occipital crest and a patch on each side of the base of the lower mandible scarlet; lower back, rump, abdomen, sides of the body and the greater portion of the under wing-coverts white; remainder of the plumage black; the throat, fore neck and sides of the head speckled, some of the flank-feathers and the shorter under tail-coverts edged, and a few of the earlier primaries narrowly tipped, with white; and the basal portion of all the quills white, forming a large patch on the underside of the wing.

The *female* differs in wanting the scarlet patches at the base of the lower mandible and in having the forehead and the anterior half of the crown black; the occipital crest is also shorter.

The *young* have the greater portion of the throat white.

Iris yellow; eyelids lavender-brown; legs plumbeous; claws horny grey; bill bluish black, darkest on the upper mandible and palest on the lower near the base.

Length 16 inches, tail 6·6, wing 8·5, tarsus 1·3, bill from gape 2. The female is as large as the male.

This species may be recognized at a glance by its white rump. *T. hodgii*, from the Andamans, and *T. hodgsoni*, from India, are closely allied.

The White-rumped Black Woodpecker occurs plentifully in portions of Pegu. I found it very abundant near Thayetmyo and in the country lying between that town and the ridge of the Pegu hills. On the eastern slopes, between the ridge and Tonghoo, I failed to meet with it, the forests there being apparently unfitted for it. Capt. Wardlaw Ramsay, however, procured it at Tonghoo itself. Mr. Blanford obtained it at Bassein; but

I have not seen it in any part of Southern Pegu myself. It appears to be common on the Arrakan hills, for my man shot several specimens when travelling on those hills with Mr. Theobald; but I cannot say how far north it extends. Mr. Davison found it in the northern portion of Tenasserim, and Capt. Bingham in the Thoungyeen valley.

It is not known to occur outside the limits of British Burmah. Mr. Hume has pointed out that *Hemilophus crawfurdi*, J. E. Gray (Griffith's Cuv. An. Kingd., Birds, ii. p. 513, pl.), cannot be identified with the present species; and on examining the original description and plate of *H. crawfurdi*, I am able to confirm Mr. Hume's statement. The bird is thus described:—"The whole upper part, except the crest, is deep dark brown, sprinkled with grey on the sides of the neck; across the breast is a large lunule patch of slate-colour with small dark waves; the belly is yellow, with the like crescent-shaped spots, and the crest is deep red." The plate corresponds with the description. This species, therefore, remains to be rediscovered.

T. feddeni is found in secondary jungle and on the outskirts of forests. It is fond of saplings and small trees, and I do not remember to have ever seen it on large trees.

Genus ALOPHONERPES, *Reich.*

425. ALOPHONERPES PULVERULENTUS.

THE GREAT SLATY WOODPECKER.

Picus pulverulentus, *Temm. Pl. Col.* 389; *Sundev. Consp. Av. Pic.* p. 10. **Picus gutturalis**, *Valenc. Dict. Sc. Nat.* xl. p. 178. **Dryopicus gutturalis**, *Malh. Mon. Pic.* i. p. 51, pl. xv. fig. 4-7. **Alophonerpes pulverulentus**, *Salvad. Ucc. Born.* p. 51; *Bl. & Wald. B. Burm.* p. 75; *Wardlaw Ramsay, Ibis*, 1877, p. 457. **Mulleripicus pulverulentus**, *Jerd. B. Ind.* i. p. 284; *Hume, S. F.* iii. p. 66; *Hume & Dav. S. F.* vi. p. 133; *Hume, S. F.* viii. p. 87; *Bingham, S. F.* ix. pp. 162, 472.

Description.—*Male.* Forehead, crown, nape, sides and back of the neck ashy, each feather tipped with greyish white; back, scapulars, rump and wing-coverts slaty blue, the edges of the feathers rather paler; upper tail-coverts brown; tail ashy brown; quills dark brown, the outer webs suffused with slaty; sides of the head ashy, darker on the ear-coverts; a patch of red on the cheeks; chin and throat deep saffron-yellow, the feathers of the throat more or less tinged with pink; lower plumage dull slaty, each feather tipped and more or less streaked along the shaft with ashy grey; vent and under tail-coverts plain ashy.

The *female* differs in wanting the red cheek-patch.

Bill bluish white, black on the culmen and tip of both mandibles; mouth bluish black; eyelids plumbeous; iris dark hazel-brown; legs dark plumbeous; claws bluish.

Length 20·5 inches, tail 7·5, wing 9·4, tarsus 1·5, bill from gape 3. The female is considerably smaller.

The Great Slaty Woodpecker is found in most of the large forests of Burmah. Mr. Blyth records it from Arrakan; and I procured it on the hills of that Division. In Pegu I met with it in the evergreen forests of the Pegu hills on the eastern spurs; and Capt. Wardlaw Ramsay states that he found it abundant between these hills and Tonghoo, as well as on the Karin hills to the east of the Sittang river. It is likely to occur in Southern Pegu; but I do not remember to have met with it anywhere except in the north. Both Mr. Davison and Capt. Bingham record it from Tenasserim, over which Division it appears to be uniformly distributed.

It extends southwards through the Malay peninsula to Sumatra, Java and Borneo; and Dr. Tiraud gives it from Cochin China. To the north it has been obtained in the Khasia hills by Col. Godwin-Austen; and it occurs at the foot of the Himalayas in Oudh and Nipal.

This Woodpecker, unlike most others, is usually found in small flocks. As far as I have observed it, it appears to be restricted to the densest forests, frequenting large trees and being extremely wary. Capt. Bingham found the nest in Tenasserim in April. The eggs, two in number, were laid in a hole in a large wood-oil tree which had been blown down and served as a foot-bridge across a river.

Genus HEMICERCUS, *Swains.*

426. HEMICERCUS CANENTE.

THE BURMESE HEART-SPOTTED WOODPECKER.

Picus canente, *Less. Cent. Zool.* p. 215, pl. 73; *Sundev. Conspect. Av. Pic.* p. 11.
Micropicus canente, *Malh. Mon. Pic.* i. p. 190, pl. xlii. fig. 1-3. **Hemicercus canente**, *Jerd. B. Ind.* i. p. 280 (part.); *Hume, S. F.* iii. p. 61; *Bl. & Wald. B. Burm.* p. 74; *Inglis & Hume, S. F.* v. p. 25; *Hume & Dav. S. F.* vi. p. 127; *Hume, S. F.* viii. p. 87, ix. p. 112; *Bingham, S. F.* ix. p. 161.

Description.—*Male.* Forehead, crown, a bushy occipital crest, sides of the head and neck, back and scapulars black; the forehead and front of the crown minutely speckled with yellowish white; rump and all the wing-coverts next the body buffy yellowish; the remaining wing-coverts and

the tail-coverts black, very narrowly edged with buffy yellow; primaries, secondaries and tail black; tertiaries buffy yellow, each feather with a heart-shaped black spot near the tip; chin, cheeks and throat yellowish buff; breast, abdomen and sides of the body olive slate-colour; vent and under tail-coverts black, each feather narrowly tipped with yellowish; under wing-coverts buffy yellow.

The *female* resembles the male, but has the forehead and crown of the head buffy yellowish.

Young birds of both sexes are at first like the adult female; the young male commences to assume the black crown in August.

Iris reddish; bill black, plumbeous at the gape; legs and feet greenish black.

Length 6·4 inches, tail 2, wing 3·8, tarsus ·7, bill from gape 1. The female is rather smaller.

H. cordatus, from Southern India, is barely separable from the present species; it is slightly smaller, has less buffy white on the wing, and the specks on the head of the male are more conspicuous.

The Burmese Heart-spotted Woodpecker occurs locally throughout British Burmah, being very abundant in some places and apparently absent in others. Mr. Blyth records it from Arrakan; and I obtained one specimen in that Division near Nyoungyo, on the summit of the hills. I did not observe it in Northern Pegu; but in the south, on the hills just north of Pegu Town, I found it very abundant. Capt. Wardlaw Ramsay got it on the Karin hills east of Tonghoo. Mr. Davison states that it is generally distributed throughout Tenasserim; and Capt. Bingham mentions it as not being very plentiful in the Thoungyeen valley.

It extends south a short distance down the Malay peninsula, Mr. Darling having procured it at Kussoom. It will probably be found in the Indo-Burmese countries, for it is recorded from Cachar in Eastern Bengal by Mr. Inglis. This appears to be, so far as is at present known, its northern limit.

This species is met with in clearings and thin forest-country. Capt. Bingham found the nest in Tenasserim in March. The eggs, two in number, were placed in a hole in a teak tree about twelve feet from the ground.

427. HEMICERCUS SORDIDUS.

EYTON'S BUFF WOODPECKER.

Dendrocopus sordidus, *Eyton*, *Ann. Nat. Hist.* ser. 1, xvi. p. 229. *Picus sordidus*, *Sunder.* *Consp. Av. Pic.* p. 10. *Hemicercus brookeanus*, *Salvad. Ucc. Born.* p. 44. *Hemicercus sordidus*, *Salvad. Ucc. Born.* p. 46; *Tweedd. Ibis*, 1877, p. 291; *Hume & Dav. S. F.* vi. p. 128; *Hume, S. F.* viii. p. 87.

Description.—*Male.* Forehead and the whole crown crimson, tapering to a point on the occiput; the sides of the head, the whole neck, the hinder part of the elongated nuchal crest, chin, throat and breast olive slate-colour; back, scapulars, wing-coverts and tertiaries black, each feather broadly edged with yellowish and also with a yellowish bar across the middle; lower back olive-grey; rump and upper tail-coverts buffy yellow, the longer feathers of the latter black tipped with yellowish; tail black, the outer feathers barred with yellowish; primaries black, the inner webs broadly edged with yellowish at the base; secondaries black, notched with yellowish on both webs; abdomen, flanks and under tail-coverts black, the feathers edged with yellowish; under wing-coverts uniform pale buff.

The *female* differs in having no crimson on the head, the whole crown being of the same olive slate-colour as the other parts.

The *young male* has the crown buff narrowly barred with black, and the occipital crest dull scarlet varied with slaty grey.

The *young female* has the crown and occipital crest plain dull buff.

Length 5·5 inches, tail 1·5, wing 3·4, tarsus ·6, bill from gape 1·1. The female is of the same size.

The above descriptions are taken from birds in Mr. Hargitt's museum. Mr. Hume thus describes the head of a bird which he says is obviously young and just from the nest:—"The entire crown brownish ruddy buff, each feather narrowly tipped with dark brown; crest similar, and similarly tipped; basal two thirds of elongated crest-feathers dull crimson; the margins and shafts coloured like the terminal portion."

H. brookeanus was based on specimens which exhibited a lemon-yellow tinge on the rump and under tail-coverts; and Mr. Hume states that this yellow tinge is present in many specimens of undoubted *H. sordidus*.

H. concretus from Java, and probably from other localities, differs from *H. sordidus* in the male having the entire crest red. The females appear to be inseparable.

H. hartlaubi, as figured by Malherbe, has the whole crest red, and is certainly nothing but *H. concretus* in adult male plumage.

Eyton's Buff Woodpecker occurs in the extreme south of Tenasserim as a mere straggler. Mr. Davison appears to have got only one specimen in

the course of some years, but it was a nestling, and consequently this Woodpecker may not be quite so rare at Bankasoon as is supposed.

It extends down the Malay peninsula, and is also found in the islands of Sumatra and Borneo.

Genus **PICUS**, *Linn.*

428. **PICUS MACII.**

THE FULVOUS-BREASTED PIED WOODPECKER.

Picus macei, *Vieill. Nouv. Dict. d'Hist. Nat.* xxvi. p. 80; *Malh. Mon. Pic.* i. p. 96, pl. xxiv. fig. 1-4; *Jerd. B. Ind.* i. p. 272; *Sumdev. Consp. Av. Pic.* p. 25; *Hume, Nests and Eggs*, p. 120; *Cripps, S. F.* vii. p. 261; *Hume, S. F.* viii. p. 87; *Scully, S. F.* viii. p. 245. **Dendrotypes macei**, *Bl. B. Burm.* p. 77.

Description.—*Male.* Nasal plumes and forehead brown; the whole of the crown of the head crimson; a large triangular patch on the nape black; sides of the head and neck nearly meeting behind the nape-patch dull white; upper wing-coverts and upper back black; the wings, scapulars, interscapulary region, lower back and rump black, with bar-like white spots; upper tail-coverts and the four central tail-feathers entirely black; the remaining tail-feathers black barred with white; a stripe running down the side of the throat from the lower mandible to the side of the upper breast black; lower plumage fulvous, sparingly streaked with black on the breast and abdomen and barred with black on the sides of the body and flanks; vent and under tail-coverts scarlet.

The *female* differs in having those parts of the head black which are crimson in the male; the forehead and nasal plumes are also black.

This species may be recognized by the whole crown being crimson in the male, black in the female; by the central tail-feathers being unspotted black; by the sides of the head and the throat being fawn-coloured, not white; and by the lower plumage being very faintly streaked and barred with brown.

Bill plumbeous dusky, grey-horny at base; feet greenish plumbeous. (*Scully.*)

Length 7·5 inches, tail 3, wing 4·1, tarsus ·7, bill from gape 1·2. The female is of much the same size.

The Fulvous-breasted Pied Woodpecker was received by Mr. Blyth from both the Arrakan and Tenasserim Divisions. Capt. Wardlaw Ramsay met with it on the Karin hills at an elevation of 3000 feet and in Karennie at

an elevation of 4000 feet. Mr. Blyth, as quoted by Dr. Jerdon, states that this species is very common at Akyab.

It is found in the hill-tracts of Eastern Bengal, and it extends along the lower ranges of the Himalayas from Assam to the Cabool river. To the south it is said to occur at Malacca.

It breeds in India from March to June.

429. PICUS ATRATUS.

THE STRIPE-BREADED PIED WOODPECKER.

Picus atratus, *Bl. J. A. S. B.* xviii. p. 803, xxviii. p. 412; *Malh. Mon. Pic.* i. p. 72; *Sundev. Consp. Av. Pic.* p. 25; *Wald. Ibis*, 1876, p. 343; *Hume & Dav. S. F.* vi. pp. 123, 500; *Hume, S. F.* viii. p. 87. *Dendrotypes atratus*, *Bl. & Wald. B. Burm.* p. 77.

Description.—*Male.* Similar to *P. macii*, differing only in the following points:—The lower plumage is brighter fulvous and very boldly streaked with black; the feathers of the occiput are lengthened; the six central tail-feathers are unspotted; the sides of the head and the throat are pure silvery white; the breast is tinged with crimson.

The *female* differs from the male in having the crown of the head black, not crimson.

This species may be recognized by the crown being crimson in the male, black in the female; by the six central tail-feathers being unspotted black; by the sides of the head and throat being pure white; and by the lower plumage being very boldly streaked with black.

Legs and feet dark plumbeous or plumbeous brown; claws very dark brown; irides light wood- to deep brown; upper mandible dull black, dark brown or horny brown; lower mandible and extreme base of upper mandible pale plumbeous or bluish white. (*Davison.*)

Length 8 inches, tail 3·3, wing 4·5, tarsus ·75, bill from gape 1·2. The female is of much the same size.

The Stripe-breasted Pied Woodpecker, so far as is at present known, is confined to British Burmah, and appears to be a rare bird. Capt. Wardlaw Ramsay procured it in the Karin hills, east of Tonghoo, at 3000 and 4000 feet elevation; and Mr. Davison observed it in Tenasserim in the pine-forests of the Salween river and on and near Mooleyit. It does not appear to frequent lower altitudes than 3000 feet.

Nothing is noted about its habits.

430. PICUS ANALIS.

THE SPOTTED-BREASTED PIED WOODPECKER.

Picus analis, Temm.*, *Horsf. Zool. Res. Java, Gen. Cat. Fam. xii.*; *Malh. Mon. Pic.* i. p. 99, pl. xxiv. fig. 5-7; *Sundev. Consp. Av. Pic.* p. 25; *Hume, S. F.* iii. p. 57; *Wald. Trans. Zool. Soc.* ix. p. 148; *Armstrong, S. F.* iv. p. 309; *Hume, S. F.* viii. p. 87; *Oates, S. F.* x. p. 190. **Picus pectoralis**, *Bl. J. A. S. B.* xv. p. 15. **Dendrotypes analis**, *Salvad. Ucc. Born.* p. 40; *Bl. & Wald. B. Burm.* p. 78.

Description.—*Male.* Similar in general aspect to *P. macii*, but differing in the following respects:—The upper back is barred with white, like the remainder of the interscapular region and rump; the upper tail-coverts are barred with white; *all* the tail-feathers are barred or spotted with white; the sides of the head and throat are a pure white; the lower plumage is less fulvous, and the chest and breast are conspicuously spotted with black; the remainder of the lower plumage is closely barred with black; the vent and under tail-coverts are only faintly washed with red.

The *female* differs in wanting the crimson on the head, that part being black.

This species may be known by the whole crown being crimson in the male, black in the female; by the central tail-feathers being barred and spotted with white; by the vent and under tail-coverts being very faintly tinged with red, instead of being deep crimson as in the preceding Pied Woodpeckers; and by the breast being spotted with black.

Bill bluish black, paler at the base; iris brown; eyelids purplish brown; mouth flesh-colour; legs and feet plumbeous; claws bluish horn-colour.

Length 7 inches, tail 2·5, wing 4, tarsus ·7, bill from gape 1. The female is of much the same size.

The Spotted-breasted Pied Woodpecker appears to be locally distributed in Pegu. It is rather common in the neighbourhood of Thayetmyo, and both Mr. Blyth and Lord Tweeddale received it from Tonghoo. Dr. Armstrong procured it at Elephant Point at the mouth of the Rangoon river; but I failed to observe it in any portion of Southern Pegu. Capt. Wardlaw Ramsay obtained it in Karennee; but it has not yet been found in any portion of Tenasserim.

It occurs in the islands of Sumatra, Java, Madura and Lombock; and

* This name is generally quoted as Horsfield's; but Horsfield distinctly credits Temminck with it (*l.c.*).

it is said to have been found also in Borneo and the Philippine Islands. Dr. Tiraud states that it is common in Cochin China.

This Woodpecker frequents brushwood and thin tree-jungle. I have never seen it in thick forest.

431. PICUS CANICAPILLUS.

THE BURMESE GREY-HEADED PIED WOODPECKER.

Picus canicapillus, *Bl. J. A. S. B.* xiv. p. 197; *Malh. Mon. Pic.* i. p. 141; *Sundev. Consp. Av. Pic.* p. 29. **Yungipicus canicapillus**, *Wald. P. Z. S.* 1866, p. 539; *Hume, S. F.* iii. p. 59; *Bl. B. Burm.* p. 78; *Armstrong, S. F.* iv. p. 309; *Hume, S. F.* v. p. 25; *Hume & Dav. S. F.* vi. pp. 125, 500; *Hume, S. F.* viii. p. 87. **Iyngipicus canicapillus**, *Hargitt, Ibis*, 1882, p. 39.

Description.—*Male.* Forehead and crown grey; the nape, hind neck and a streak over the eye black; a patch of flaming scarlet on either side the occiput; lesser and median wing-coverts black; the remainder of the wings, back, rump and upper tail-coverts black barred with white; the tail black spotted with white; a broad streak from the eye down the side of the occiput white; ear-coverts brown; a patch on the side of the neck black; lower plumage dull white streaked with blackish brown.

The *female* differs in wanting the scarlet patches on the sides of the occiput.

Iris reddish hazel; eyelids plumbeous; bill plumbeous, pale at the gape and on the greater portion of the lower mandible; mouth flesh-colour; legs and feet plumbeous green; claws horn-colour.

Length 5·5 inches, tail 1·8, wing 3·2, tarsus ·55, bill from gape ·7. The female is nearly as large as the male.

The Burmese Grey-headed Pied Woodpecker is very generally distributed over British Burmah. Both Mr. Hume and Mr. Blyth record it from Arrakan. I have procured it at various points in Pegu, at Thayetmyo, Pegu Town and in the country extending between this place and Tonghoo. Dr. Armstrong found it at Elephant Point. Capt. Wardlaw Ramsay procured it in Karennee at 4000 feet elevation; and both Mr. Davison and Capt. Bingham found it in every part of Tenasserim that they visited. My own men secured several specimens at the extreme southern point of this Division.

To the north of Burmah it has been noted from Cachar, Tipperah and Assam. Mr. Hume states that it is found throughout the Malay peninsula down to Singapore, and Dr. Tiraud gives it from Cochin China.

This small Woodpecker is found in brushwood and small jungle. I did not succeed in finding its nest.

432. *PICUS PUMILUS*.

HARGITT'S GREY-HEADED PIED WOODPECKER.

Iyngipicus pumilus, *Hargitt, Ibis*, 1881, p. 599; *id. Ibis*, 1882, p. 37.

Description.—*Male*. Similar to *P. canicapillus*, differing in being smaller and in having the central four tail-feathers spotless black or with merely one or two small white specks.

Length about 5 inches, tail 1·5, wing 2·8, bill from forehead ·5 to ·6.

This small Woodpecker was described by Mr. Hargitt on my return to England, and his description was based on two specimens procured at Malewoon in Southern Tenasserim. My men secured in all six birds, and these were of the same type and distinguishable at a glance from numerous specimens of *P. canicapillus* which they also brought with them from the same place. Of these six birds, one male and two females had the central four tail-feathers absolutely spotless; the others had either one or two minute white spots on one or other of the four feathers.

P. canicapillus, as it proceeds south, shows a tendency to acquire a uniform black tail as regards the central feathers, but it shows no tendency to become smaller in size; and therefore the acquisition of six markedly smaller birds at a place where full-sized *P. canicapillus* was also obtained fully justifies Mr. Hargitt in separating the small bird from the large one.

This Woodpecker is not known with certainty as yet to occur elsewhere than at Malewoon; but Mr. Hargitt suggests that the small Woodpeckers referred to by Capt. Feilden (*S. F.* iii. p. 59) as occurring at Thayetmyo may belong to this species.

433. *PICUS MAHRATTENSIS*.

THE YELLOW-FRONTED PIED WOODPECKER.

Picus mahrattensis, *Lath. Ind. Orn. Suppl.* p. xxxi; *Malh. Mon. Pic.* i. p. 105, pl. xxviii. fig. 1-3; *Sundev. Consp. Av. Pic.* p. 31; *Jerd. B. Ind.* i. p. 274; *Hume, Nests and Eggs*, p. 122; *Ball, S. F.* ii. p. 390; *Hume, S. F.* iii. p. 58; *Legge, Birds Ceylon*, p. 184; *Hume, S. F.* viii. p. 87. *Picus aurocristatus*, *Tick. J. A. S. B.* ii. p. 579. *Picus blanfordi*, *Bl. J. A. S. B.* xxxii. p. 75. *Liopipo mahrattensis*, *Bl. B. Burm.* p. 78.

Description.—*Male*. Nasal plumes, forehead and anterior half of crown dull straw-yellow; posterior half of crown scarlet; a patch of dark brown on the nape; sides of the head extremely pale yellow tinged with fulvous; sides of the nape white nearly meeting behind the brown nape-patch;

the whole upper plumage, wings and tail black spotted with white; chin, throat, and a line down the fore neck white; sides of the neck brown; a line under the ear-coverts white; lower plumage dull white broadly streaked with brown; *centre of the abdomen crimson*; under wing-coverts white mottled with black.

The *female* differs in the absence of the crimson on the posterior part of the crown, this portion being straw-yellow like the remainder of the crown.

Bill clear plumbeous, darker on the culmen and tip of both mandibles; mouth bluish flesh-colour; eyelids dark brown; iris red; legs plumbeous; claws horny blue.

Length 7·5 inches, tail 2·7, wing 4, tarsus ·7, bill from gape 1·1. The female is of the same size.

This species cannot be confounded with any other Burmese Pied Woodpecker, the straw-yellow head and the crimson abdomen being sufficient to distinguish it.

The Yellow-fronted Pied Woodpecker appears to be confined to the northern portion of Pegu. I found it very abundant at Thayetmyo along the banks of the Irrawaddy for some distance down the river, and Capt. Wardlaw Ramsay procured it at Tonghoo.

It probably inhabits the Indo-Burmese countries; and it is distributed over the whole peninsula of India to Scinde on the west and to Ceylon on the south.

This Pied Woodpecker is more of a forest bird than the others, but it is occasionally met with in compounds and brushwood. In India it appears to breed from February to April. The eggs have not yet been taken in Burmah.

A vast number of Pied Woodpeckers inhabit Asia, and it is impossible even to enumerate them in this work. None of them, however, are likely to visit Burmah, except perhaps a species which inhabits the Malay peninsula, and to which Mr. Hume refers (S. F. viii. p. 153) under the name of *Ijngipicus variegatus*. It is allied to *P. canicapillus*, but has no grey whatever on the crown, which, with the ground-colour of the whole of the upper plumage, is smoky brown. It was procured by Mr. Davison at Klang, and is not unlikely to creep up into Tenasserim.

Genus VENILIA, Bonap.

434. VENILIA PYRRHOTIS.

THE CRIMSON-NECKED BAY WOODPECKER.

Picus pyrrhotis, *Hodgs. J. A. S. B.* vi. p. 108; *Sundev. Consp. Av. Pic.* p. 47. *Celeopicus pyrrhotis*, *Malh. Mon. Pic.* ii. p. 37, pl. xlix. fig. 4-6. *Venilia pyrrhotis*, *Jerd. B. Ind.* i. p. 291; *Wald. in Bl. B. Burm.* p. 77; *Hume & Dav. S. F.* vi. p. 142. *Blythipicus pyrrhotis*, *Hume, S. F.* vii. p. 520, viii. p. 88.

Description.—*Male.* The whole head, chin and throat brown, dark on the crown and with pale shaft-lines, paler on the cheeks, chin and throat; a broad collar round the hind neck from ear-coverts to ear-coverts crimson; back, scapulars and upper wing-coverts dark cinnamon-red banded with rufous-bay, and with a broad dark-brown band across each feather; wings, rump, upper tail-coverts and tail rufous-bay broadly banded with black; breast, abdomen and sides of the body blackish brown; thigh-coverts, vent and under tail-coverts blackish brown narrowly banded with rufous.

The *female* differs in wanting the crimson collar round the hind neck, the sides of the neck just below the ear-coverts being merely tinged with reddish.

Legs and feet very dark green, sometimes so dark as to appear black; claws dark horny brown; bill pale greenish yellow, strongly tinged green at base and whitish and semitransparent at tip; irides reddish orange to brownish red. (*Davison.*)

Length 12 inches, tail 4, wing 6, tarsus 1.1, bill from gape 2. The female is slightly smaller.

The Crimson-necked Bay Woodpecker has been obtained on the Tonghoo hills by Capt. Wardlaw Ramsay, and in Tenasserim by Mr. Davison, who met with it from Kollidoo down to Mooleyit.

It occurs in the south-eastern Himalayas from Assam to Sikhim and Nipal, and it has also been found in Cachar by Mr. Inglis.

Mr. Davison found this Woodpecker in brushwood and elephant-grass jungle, and he remarks that it is a very shy bird.

Mr. Hume is of opinion that the generic name *Blythipicus* and not *Venilia* should be used for this species and the next. Both names, however, were given by Bonaparte, and as the latter has gained a wide currency I prefer to adopt it.

435. VENILIA PORPHYROMELAS.

THE CRIMSON-NECKED MAROON WOODPECKER.

Picus porphyromelas, Boie*, *Briefe geschr. aus Ostind.* p. 143; *Sundev. Consp. Av. Pic.* p. 47. *Hemicircus rubiginosus*, Swains. *Birds W. Afr.* ii. p. 150. *Celeopicus porphyromelas*, *Malh. Mon. Pic.* ii. p. 39, pl. xlix. fig. 1-3. *Lepocestes porphyromelas*, *Salvad. Ucc. Born.* p. 48. *Venilia porphyromelas*, *Hume & Dav. S. F.* vi. p. 143. *Blythipicus porphyromelas*, *Hume, S. F.* vii. p. 520, viii. p. 88.

Description.—*Male.* The whole head, chin and throat brown, darker on the crown and nape; a large patch on each side the nape bright crimson; back and scapulars maroon, the shafts whitish; rump and upper tail-coverts brown, suffused with maroon and obscurely banded with brownish white; tail black, narrowly banded with brownish white; upper wing-coverts maroon, the centres of the feathers more or less brown narrowly and indistinctly barred with whitish; wings and primary-coverts dark brown with pale rufescent bars, the outer webs suffused with maroon; fore neck, breast and all the lower plumage blackish brown tinged with chocolate or rufous, and with a trace of maroon on the sides of the body; under tail-coverts very indistinctly barred with paler brown. Some specimens have a tinge of red on the cheeks.

The *female* differs in wanting the crimson patches on the sides of the nape.

Legs and feet dark, varying in shade very much, generally somewhat purplish or purplish brown, sometimes greyish purple, or very dark greyish or greenish brown; the irides are red, crimson, scarlet, or even salmon-pink; the orbital skin varies much like the legs and feet, dark purplish grey, dark greyish brown or brownish green to almost black; the bill is chrome-yellow, more or less strongly tinged with green towards the base. (*Davison.*)

Length 9 inches, tail 3, wing 5, tarsus .9, bill from gape 1.6. The female is of much the same size.

Mr. Davison procured the Crimson-necked Maroon Woodpecker in the southern portion of Tenasserim from Bopyin down to Malewoon, where he states it was very common. My men also found it common at Malewoon.

It extends down the Malay peninsula, and is found in the islands of Sumatra and Borneo.

This species, according to Mr. Davison, frequents the undergrowth and smaller trees of the evergreen forests.

* I have been unable to find this reference. Count Salvadori assigns to it the date of 1832.

Genus GECINULUS, *Blyth*.

436. GECINULUS VIRIDIS.

BLYTH'S THREE-TOED GREEN WOODPECKER.

Gecinulus viridis, *Bl. J. A. S. B.* xxxi. p. 341; *id. B. Burm.* p. 77; *Hume, S. F.* iii. p. 71; *Hume & Dav. S. F.* vi. p. 144; *Hume, S. F.* viii. p. 88; *Bingham, S. F.* ix. p. 164. *Picus scotochlorus*, *Sundev. Consp. Av. Pic.* p. 43.

Description.—*Male.* Forehead, lores, sides of the head and neck, and throat yellowish brown, tinged with golden on the sides of the neck; crown, nape and crest crimson; back, scapulars, wing-coverts and upper tail-coverts olive-yellow; rump olive-yellow tipped with red; tail dark brown, tinged with yellow on the outer webs near the base, and all but the central pair with white spots on the inner webs; quills dark brown, the outer webs broadly edged with olive-yellow; the inner webs of all spotted with white; chin blackish; breast, abdomen, sides, vent and under tail-coverts greenish brown.

The *female* differs in having the crown, nape and crest olive-yellow, almost pure yellow on the hinder part of the crest.

Bill pale milk-blue; mouth flesh-colour; iris red; eyelids plumbeous; legs green; claws horn-colour.

Length 10·5 inches, tail 4·2, wing 5·2, tarsus 1, bill from gape 1·2. The female is of about the same size.

Blyth's Three-toed Green Woodpecker is common on the Pegu hills between Thayetmyo and Tonghoo, both in the dry and in the evergreen forests. I have not observed it in Southern Pegu. Capt. Wardlaw Ramsay procured it on the Tonghoo hills at an elevation of 2500 feet; Mr. Davison obtained it in almost every portion of Tenasserim; and Capt. Bingham states that it is fairly common in the Thoungyeen valley.

It extends a short distance down the Malay peninsula, where it has been shot at Kussoom.

I observed that this Woodpecker was very partial to the large bamboos which grow on the hills, and was seldom or never found on trees.

The allied *G. grantia* from India differs chiefly in having the upper plumage dull red.

Genus GAUROPICOIDES, *Malh.*

437. GAUROPICOIDES RAFFLESII.

RAFFLES'S THREE-TOED GREEN WOODPECKER.

Picus rafflesii, *Vig. App. Mem. Raffl.* p. 669; *Sundev. Consp. Av. Pic.* p. 57.
Chloropicoides rafflesii, *Malh. Mon. Pic.* ii. p. 102, pl. lxxii. fig. 1-4.
Gauropicoides rafflesii, *Malh. Mon. Pic.* i. p. liii; *Salvad. Ucc. Born.* p. 54;
Hume & Dav. S. F. vi. p. 146; *Hume, S. F.* viii. p. 88.

Description.—*Male.* Frontal feathers, lores, cheeks, chin, throat and fore neck orange-fulvous; crown, nape and a very ample crest scarlet; a stripe from the eye over the ear-coverts down the sides of the neck and another stripe from the gape under the ear-coverts and continued some distance down the neck white; the space between these two white stripes black; another broad band under the lower white streak commencing at the end of the cheeks and reaching down the neck black; back, rump, scapulars and upper wing-coverts golden olive; quills dark brown, the primaries paler at the tips; the secondaries and tertiaries very broadly edged with golden olive; all the quills with a few white spots on the inner webs near the base; primary-coverts blackish; upper tail-coverts and tail black; breast and whole lower plumage dark brown suffused with olive-green; the sides of the body barred or spotted with whitish; under wing-coverts olive-brown boldly spotted with white. In some males the feathers of the rump are tipped with crimson.

The *female* differs in having the whole of the crimson on the head replaced by black.

Legs and feet dark green; claws dark plumbeous; irides deep brown to deep brownish red; upper mandible black or bluish; tip of lower mandible generally blackish; rest of lower mandible dark plumbeous to plumbeous blue in different specimens. (*Davison.*)

Length 12 inches, tail 4·5, wing 5·5, tarsus 1, bill from gape 1·5. The female is considerably smaller than the male.

Raffles's Three-toed Green Woodpecker occurs in Tenasserim from Mooleyit mountain down to Bankasoon; and it appears to be a somewhat rare bird.

It extends down the Malay peninsula, and is found in the islands of Sumatra and Borneo.

According to Mr. Davison this species is confined to the dense ever-green forests.

Genus CHRYSOPHLEGMA, *Gould*.

438. CHRYSOPHLEGMA FLAVINUCHA.

GOULD'S YELLOW-NAPED WOODPECKER.

Picus flavinucha, *Gould*, *P. Z. S.* 1833, p. 120; *Sundev. Consp. Av. Pic.* p. 57.

Chloropicus flavinucha, *Malh. Mon. Pic.* ii. p. 106, pl. lxxiii. fig. 1-4.

Chrysophlegma flavinucha, *Jerd. B. Ind.* i. p. 289; *Hume, S. F.* iii. p. 71; *Hume & Dav. S. F.* vi. p. 137; *Hume, S. F.* viii. p. 87.

Description.—*Male.* Forehead and crown cinnamon-brown, the edges of the feathers greenish, and the nape distinctly tinged with green; posterior portion of the crest and the hind neck bright yellow; chin, throat and cheeks yellow, the black bases of the throat-feathers showing through; fore neck greenish black, the bases of the feathers white and showing up very plainly in places; sides of the head and neck greenish brown; the whole upper plumage and wing-coverts bright green; tail black; primaries barred with black and cinnamon-red; secondaries and tertiaries barred black and cinnamon-red, and with the outer webs broadly edged with green; the later secondaries and the tertiaries also tipped with green; breast smoky greenish brown; remainder of lower plumage ashy brown.

The *female* differs in having the chin and throat reddish brown.

Bill dusky bluish white; iris red; eyelids, gape and naked skin at gape greenish blue; legs dusky blue; claws horn-colour.

Length 13 inches, tail 5·1, wing 6·2, tarsus ·9, bill from gape 1·6. The female is of the same size.

Gould's Yellow-naped Woodpecker occurs in most of the deep forests of Pegu, and it is particularly abundant in all parts of the Pegu hills. Capt. Wardlaw Ramsay met with it at Tonghoo and on the Karin hills. Mr. Davison found it in Tenasserim down to about the latitude of Moulmein; and Capt. Bingham states that it is fairly common in the Thoungyeen valley. Mr. Blyth records it from Arrakan.

It extends north into the hill-tracts of Eastern Bengal; and Dr. Jerdon says that it is found throughout the Himalayas.

This Woodpecker is found in thick forests; and it is in the habit of descending to the ground to search for food.

439. CHRYSOPHLEGMA PUNICEUS.

HORSFIELD'S YELLOW-NAPED WOODPECKER.

Picus puniceus, *Horsf. Trans. Linn. Soc.* xiii. p. 176; *Sundev. Consp. Av. Pic.* p. 58. *Chloropicus puniceus*, *Malh. Mon. Pic.* ii. p. 110, pl. lxxiv. fig. 5-7. *Callolophus puniceus*, *Salvad. Ucc. Born.* p. 49; *Hume & Dav. S. F.* vi. p. 139; *Hume, S. F.* viii. p. 88.

Description.—*Male.* Forehead, crown, nape, basal portion of the crest and a broad patch on either side of the base of the lower mandible crimson; remainder of the crest yellow; back, scapulars, rump and upper tail-coverts bright green, the feathers more or less margined with yellow; tail black; wing-coverts crimson; primaries black, the earlier ones crimson at the base, the amount increasing till, on the last, almost the entire web is crimson; secondaries black on the inner web, crimson on the outer; tertiaries brown, then pale crimson and broadly tipped with bright green; all the quills spotted with white on the inner webs; sides of the head and the whole lower plumage brownish green, paler on the chin and throat; the sides of the body spotted or barred with whitish; under wing-coverts brown spotted with white.

The *female* differs in wanting the crimson patches at the base of the lower mandible.

Legs and feet pale green, sometimes dingy, sometimes slightly yellowish; claws pale greenish horny; eyelids dull black; orbital skin lavender-blue, bright plumbeous blue, pale blue, sometimes glossed with green close to the eye; irides crimson; lower mandible and base of upper mandible chrome- to greenish yellow; rest of upper mandible black; gape lavender. (*Davison.*)

Length 10·5 inches, tail 4, wing 5·1, tarsus ·95, bill from gape 1·3. The female is considerably larger.

Horsfield's Yellow-naped Woodpecker occurs in the southern portion of Tenasserim, where Mr. Davison states that it is not rare.

It extends down the Malay peninsula, and is found in the islands of Sumatra, Java and Borneo.

This Woodpecker inhabits the evergreen forests, occasionally coming into clearings, and it appears to have a remarkable note, quite different to those of the other Woodpeckers.

440. CHRYSOPHLEGMA CHLOROLOPHUS.

THE SMALL YELLOW-NAPED WOODPECKER.

Picus chlorolophus, Vieill. *Nouv. Dict. d'Hist. Nat.* xxvi. p. 78; *Bonn. et Vieill. Tabl. Enc. et M  th.* p. 1309; *Sundev. Consp. Av. Pic.* p. 58. **Chloropicus chlorolophus**, *Malh. Mon. Fic.* ii. p. 108, pl. lxxiv. fig. 1-3. **Chrysophlegma chlorolophus**, *Jerd. B. Ind.* i. p. 289; *Hume, S. F.* iii. p. 71; *Wald. in Bl. B. Burm.* p. 76; *Hume & Dav. S. F.* vi. p. 138; *Hume, S. F.* viii. p. 87; *Scully, S. F.* viii. p. 249.

Description.—*Male.* Forehead, a broad stripe on either side of the crown over the eyes and reaching to the nape, and a large patch on either side of the base of the lower mandible crimson; crown and nape green; a long occipital crest yellow; sides of the head and neck, chin, throat and the whole breast brownish green; a whitish line from the gape under the ear-coverts; back, rump, upper tail-coverts, scapulars, upper wing-coverts and tertiaries bright green, the primary-coverts tinged with aureous; tail black; primaries black, the outer webs red at the base, this colour increasing in extent till on the last primary it occupies the whole web; secondaries black on the inner webs, red on the outer and margined with green; both primaries and secondaries barred with white on the inner webs; abdomen, sides of the body, vent, under tail-coverts and under wing-coverts dull white barred with brownish green.

The *female* differs in wanting the crimson on the head of the male except a short streak on either side of the nape.

The feathers of the chin and throat are white at the base, and these white bases are very plainly shown in some specimens.

Iris bright red; eyelids lavender; upper mandible and anterior half of the lower horny black; remainder of the lower mandible lemon-yellow; legs and feet dull greenish; claws plumbeous.

Length 10·5 inches, tail 4, wing 5·4, tarsus ·85, bill from gape 1·2. The female is of the same size as the male or rather larger.

The Small Yellow-naped Woodpecker is stated by Mr. Blyth to occur in Arrakan. I found it in Pegu only between Thayetmyo and Tonghoo, and it appears to avoid the damper southern portion of the Division. Capt. Wardlaw Ramsay procured it at Tonghoo and on the Karennee hills at 3000 feet elevation. In Tenasserim it was observed by Mr. Davison in all parts of the Division down to about Amherst; and Capt. Bingham states that it is common in the Thoungyeen valley.

It is found in Cachar and the hill-tracts of Eastern Bengal, and it extends along the Himalayas from Assam to Nipal. It ranges south to about Orissa.

This Woodpecker is found alike in thick forests and in spare tree-jungle. It occasionally descends to the ground.

Genus CALLOLOPHUS, *Salvad.*

441. CALLOLOPHUS MENTALIS.

THE SPOTTED-THROATED YELLOW-NAPED WOODPECKER.

Picus mentalis, *Temm. Pl. Col.* 384; *Sundev. Consp. Av. Pic.* p. 58. *Chloropicus mentalis*, *Malh. Mon. Pic.* ii. p. 112, pl. lxxv. fig. 1, 5 & 6. *Callolophus mentalis*, *Salvad. Ucc. Born.* p. 49; *Hume & Dav. S. F.* vi. p. 138; *Hume, S. F.* viii. p. 87. *Chrysophlegma mentalis*, *Bl. B. Burm.* p. 76.

Description.—*Male.* Forehead, crown, nape, ear-coverts and feathers under the eye dull green or greenish brown; occipital crest bright yellow; back, rump, scapulars, upper tail-coverts and tertiaries green; the edge of the wing also green; primaries dark brown, with rufous spots or bars on both webs, the basal portions of the outer webs more or less crimson; secondaries with the outer webs crimson, the inner dark brown barred with rufous; upper wing-coverts crimson; tail black; chin and cheeks brown, spotted with dull white; throat black, streaked with white; sides of the nape and of the neck and the breast chestnut; remainder of lower plumage dull green, tinged with yellow; under wing-coverts greenish, barred with fulvous.

The *female* differs in having the chin and cheeks chestnut like the breast, not brown spotted with white.

Legs and feet green; claws plumbeous; upper mandible dull black; lower mandible and edges of upper mandible near nostril pale plumbeous; orbital skin dark green, at times pale green; irides deep red. (*Davison.*)

Length 11 inches, tail 4, wing 5·2, tarsus ·9, bill from gape 1·5. The female is of nearly the same size.

The Spotted-throated Yellow-naped Woodpecker, according to Mr. Davison, is found in the extreme south of Tenasserim about Bankasoon, where it appears to be rare; but Mr. Blyth received it from Mergui, much further north.

It occurs in the Malay peninsula and in the islands of Sumatra, Java and Borneo. It is probably an inhabitant of dense forests, but Mr. Davison makes no remark about its habits.

442. CALLOLOPHUS MALACCENSIS.

THE MALACCAN YELLOW-NAPED WOODPECKER.

Picus malaccensis, *Lath. Ind. Orn.* i. p. 241. *Chloropicus miniatus*, *apud Malh. Mon. Pic.* ii. p. 116, pl. lxxvi. fig. 1-3. *Picus miniatus*, *apud Sundev. Consp. Av. Pic.* p. 59 (part.). *Venilia malaccensis*, *Slater, P. Z. S.* 1863, p. 211. *Callolophus malaccensis*, *Salvad. Ucc. Born.* p. 50; *Tweedd. Ibis*, 1877, p. 288; *Hume & Dav. S. F.* vi. p. 140; *Hume, S. F.* viii. p. 88. *Chrysophlegma malaccensis*, *Hume, S. F.* iii. p. 324 (note).

Description.—*Male.* Forehead, crown and the uppermost feathers of the occipital crest crimson; the lower and longer feathers of the crest yellow; the whole of the sides of the head mixed fulvous-brown and crimson, the bases of the feathers being of the former and the tips of the latter colour; upper neck and back greenish barred with yellowish, the sides more or less tinged with crimson; rump bright yellow, indistinctly barred with green; upper tail-coverts brown, tipped with pale yellow; tail dark brown or black; wing-coverts, the basal portions of the outer webs of the primaries, the whole of the outer webs of the secondaries and nearly the whole of the tertiaries and scapulars crimson; remainder of the wing dark brown; the primaries spotted on the outer webs, barred on the inner, with yellowish white; the secondaries barred on the inner webs; chin, throat, sides of the neck and breast dull buff; remainder of the lower plumage buffish white, closely barred with brown; under wing-coverts whitish, barred with brown.

The *female* differs in not having any crimson on the sides of the face, and in having the forehead, lores, feathers round the eye, cheeks, chin and throat tipped with white preceded by a black bar.

Legs and feet pale dingy green; claws bluish or greenish dusky horny; irides commonly red, in some specimens almost brown, in one pale crimson; eyelids pale plumbeous to dark grey; upper mandible black; lower mandible pale plumbeous to pale bluish white. (*Davison.*)

Length 10·5 inches, tail 4, wing 5·3, tarsus ·8, bill from gape 1·3. The female is rather larger than the male.

C. miniatus from Java is said to differ in having the whole of the crest crimson and the greater portion of the back in both sexes red. Mr. Hume, however, states that Tenasserim birds are nearer to *C. miniatus* than to *C. malaccensis* in this respect. The only specimen which my men brought back from Malewoon does not bear out Mr. Hume's statement, the back being entirely green, merely tinged with red in the immediate vicinity of the scapulars. Another specimen from the island of Salanga is similar. In both specimens the lower and longer feathers of the crest are yellow. I have not been able to examine Javan birds.

The Malaccan Yellow-naped Woodpecker occurs in the south of Tenasserim from Malewoon up to Mergui, and also in the island of Salanga.

It extends down the Malay peninsula to Sumatra and Borneo.

According to Mr. Davison, this species is found in evergreen forests, but is also partial to mangrove-swamps.

Genus GECINUS, *Boie*.

443. GECINUS VIRIDANUS.

THE STRIATED GREEN WOODPECKER.

Picus viridanus, *Bl. J. A. S. B.* xii. p. 1000. *Chloropicus dimidiatus*, *Temm., Malh. Mon. Pic.* ii. p. 132, pl. lxxvi. fig. 4-6 (part.). *Gecinus viridanus*, *Wald. P. Z. S.* 1866, p. 539; *Bl. & Wald. B. Burm.* p. 76. *Gecinus vittatus* (*V.*), *Salvad. Ucc. Born.* p. 51 (part.); *Hume, S. F.* iii. p. 68; *Armstrong, S. F.* iv. p. 310; *Hume & Dav. S. F.* vi. p. 136; *Hume, S. F.* viii. p. 87; *Bingham, S. F.* ix. p. 163.

Description.—*Male.* Forehead, crown, nape and lengthened occipital feathers scarlet; back, scapulars and tertiaries green; rump and upper tail-coverts yellowish green; tail black, barred with white on the basal half; upper wing-coverts green, the base of all the feathers barred with white, but the bars invisible unless the feathers be lifted; bastard wing, primary-coverts and primaries black, with a series of white spots on both webs; secondaries black, very broadly edged with green on the outer webs; the outer webs faintly barred, the inner webs with distinct white bars; lores, the ear-coverts and the feathers under the eye greyish brown; feathers immediately above the eye white; a broad stripe, commencing at the base of the lower mandible, covering the cheeks and running down each side of the throat, black, the feathers margined with white; chin, throat, breast and sides of the neck sordid fulvous-green, the breast more or less striated with a darker shade of the same; remainder of lower plumage greenish white, closely striated with brown; under wing-coverts whitish, barred with greenish brown.

The *female* has the red on the head replaced by black.

The whole upper mandible and the anterior portion of the lower dark brown; remainder of the lower mandible yellow; eyelids slate-colour; iris red; legs and feet dusky green; claws horny brown.

Length 13 inches, tail 5, wing 5.4, tarsus 1.1, bill from gape 1.6. The female is of about the same size as the male.

The Javan bird (*G. vittatus*, Vieill.) appears to me to be quite distinct from the Burmese species. It is characterized by the chin and throat

being buffy white with a yellowish tinge, and by the whole of the sides of the neck, fore neck and chest being uniform pure ochraceous yellow without the slightest trace of any striations. The sides of the head are silvery white with black shaft-marks, and not greyish brown as in *G. viridanus*. A specimen collected in Western Siam by Herr Carl Bock is similar to the Javan bird. Out of a numerous series of Burmese birds in Mr. Hargitt's museum, many of them collected by myself, not one shows any approach to the Javan form.

Gecinus weberi, recently described by Herr A. Müller from the island of Salanga (Orn. Ins. Salanga, p. 69, 1882), judging from examples in Mr. Hargitt's museum, does not appear to be any thing but an intensely green form of *G. viridanus*.

The Striated Green Woodpecker is generally distributed over the whole of British Burmah. Mr. Blyth records it from all three Divisions. I procured it on the Arrakan hills, and I have met with it in every part of Pegu that I have visited, and found it abundant in most places suited to Woodpeckers. Mr. Davison states that it is extremely common throughout Tenasserim, except above the elevation of 3500 feet; and Capt. Bingham says that it is one of the commonest Woodpeckers in the Thoungyeen valley.

To the east it occurs in Siam, and, according to Dr. Tiraud, it is common in Cochin China; it extends down the Malay peninsula, and is found in Sumatra and Java. It is also said to occur in Borneo.

This species appears to prefer the drier forests; but it may be met with in almost all descriptions of jungle, provided there are trees.

444. GECINUS STRIOLATUS.

BLYTH'S STRIATED GREEN WOODPECKER.

Picus striolatus, *Bl. J. A. S. B.* xii. p. 1000; *Sundev. Consp. Av. Pic.* p. 60. *Chloropicus striolatus*, *Malh. Mon. Pic.* ii. p. 134, pl. lxxvii. fig. 1-3. *Gecinus striolatus*, *Jerd. B. Ind.* i. p. 287; *Hume, Nests and Eggs*, p. 125; *Hume, S. F.* iii. p. 68; *Bl. & Wald. B. Burm.* p. 76; *Anders. Yunnan Exped.* p. 585; *Legge, Birds Ceylon*, p. 194; *Hume & Dav. S. F.* vi. p. 136; *Cripps, S. F.* vii. p. 262; *Scully, S. F.* viii. p. 247; *Hume, S. F.* viii. p. 87.

Description.—*Male.* Forehead, crown, nape and elongated feathers of the occiput scarlet; back, sides of the neck, wing-coverts, scapulars and secondaries green; rump and upper tail-coverts golden yellow; tail blackish, the central pair of feathers barred with white on the basal half, the others obsoletely barred near the base only; winglet, primary-coverts and pri-

males dark brown, with a row of white spots on both webs; secondaries brown, very broadly edged with green on the outer webs, a series of white spots or bars on the inner webs, a few obsolete spots on the outer; a line of black along the edge of the scarlet on the forehead; a narrow white line from the eye over the ear-coverts; lores and a stripe under the eye and ear-coverts whitish; sides of the head and ear-coverts greyish brown, striated darker; whole lower plumage dull green, the edges of the feathers paler and each feather with two brown stripes meeting near the tip, giving the appearance of scales; chin and throat greyer and with the stripes less marked; under wing-coverts white, barred with blackish.

The *female* has the red on the head replaced by black.

Iris red, surrounded by white; eyelids plumbeous; legs olive-green; claws pale horn-colour; upper mandible and tip of the lower horn-colour, remainder of the lower mandible yellow.

Length 11·5 inches, tail 4, wing 5·5, tarsus 1, bill from gape 1·4. The female is of about the same size.

This species is very similar in general appearance to the preceding. The markings on the lower plumage, however, are of quite a different character in the two species; and *G. viridanus* may also be distinguished by the broad black mandibular stripe, which is absent in *G. striolatus*.

Blyth's Striated Green Woodpecker, as far as I have observed it in British Burmah, seems confined to the Prome and Thayetmyo Districts, where it is very abundant. Mr. Blanford, however, procured it in the Irrawaddy Delta; and Lord Tweeddale received it from Tonghoo. It will probably be found in Arrakan.

It extends through the Indo-Burmese countries and the hill-tracts of Eastern Bengal, and is found over the whole continent of India down to Ceylon. Information is wanting regarding its limit to the west; but it has been obtained near Mount Aboo and in Oudh.

This Woodpecker frequents the dry forests termed "Ingdein" by the Burmese, and it feeds a good deal on the ground. In India it breeds from March to May, laying five eggs in a hole of a tree.

445. *GEVINUS OCCIPITALIS*.

THE BLACK-NAPED GREEN WOODPECKER.

Picus occipitalis, *Vigors*, *P. Z. S.* 1830, p. 8; *Sundev. Consp. Av. Pic.* p. 61. *Chloropicus occipitalis*, *Malh. Mon. Pic.* ii. p. 129, pl. lxxvii. fig. 4-6. *Gecinus occipitalis*, *Jerd. B. Ind.* i. p. 287; *Hume, Nests and Eggs*, p. 125; *Hume, S. F.* iii. p. 70; *Bl. B. Burm.* p. 76; *Hume & Dav. S. F.* vi. p. 137; *Hume, S. F.* viii. p. 87; *Oates, S. F.* viii. p. 165; *Scully, S. F.* viii. p. 248; *Bingham, S. F.* ix. p. 164.

Description.—*Male.* Forehead and the greater portion of the crown scarlet; posterior part of crown, nape, short occipital crest, the feathers immediately at the base of the upper mandible, a streak over the lores and eyes and a broad mandibular stripe black; lores and sides of the head greyish brown; hind neck, back and scapulars green; rump and upper tail-coverts brown, the feathers edged with bright yellow; tail brown, the outer webs of the feathers edged with greenish yellow, and the four central feathers obsoletely barred; wing-coverts and tertiaries fulvous-yellow; primary-coverts brown, with obsolete white spots on the outer webs; primaries brown, with white spots on the outer webs and white bars on the basal half of the inner; secondaries fulvous-yellow on the outer webs, brown barred with white on the inner; chin and upper part of throat grey; remainder of the lower plumage green, tinged with fulvous on the vent and under tail-coverts; under wing-coverts white barred with brown.

The *female* differs in having the forehead, crown and nape black, each feather edged with grey.

Bill dull blackish brown; eyelids purplish brown; iris dull red; legs dull green; claws greenish horn-colour.

Length 13 inches, tail 4·5, wing 5·7, tarsus 1·1, bill from gape 1·8. The female is of the same size.

The Black-naped Green Woodpecker is perhaps the commonest species of British Burmah, and is found in all parts of the Province except the southern half of Tenasserim, in which Division Mr. Davison did not observe it south of Tavoy; but Capt. Bingham found it common throughout the Thoungyeen valley.

It is probably found in the Indo-Burmese countries; and it occurs in the hill-ranges of Eastern Bengal and throughout the Himalayas from Bhootan to Afghanistan.

This species is found in all sorts of jungle except the dense evergreen forests. I have found its eggs in May and June in Pegu, and Capt. Bingham found them in Tenasserim in April. It lays three or four eggs.

446. *GEVINUS ERYTHROPYGIUS*.

THE RED-RUMPED GREEN WOODPECKER.

Gecinus erythropygius, *Elliot, Nouv. Arch. i. Bull. p. 76, pl. iii.; Oates, S. F. x. p. 191. Gecinus erythropygius, Wardlaw Ramsay, P. Z. S. 1874, p. 212, pl. xxxv. (descr. orig.). Gecinus nigrigenis, Hume, Proc. A. S. B. 1874, p. 106; Hume, S. F. ii. pp. 444, 471; Hume & Dav. S. F. vi. p. 136; Hume, S. F. viii. p. 87; Bingham, S. F. ix. p. 163.*

Description.—*Male.* Forehead, lores, the feathers round the eyes, cheeks, ear-coverts and nape black; crown crimson; back, wing-coverts, and upper tail-coverts bright yellowish green; rump fiery red; tail black, washed with green on the edges near the base; wings black; the primaries with white bars on the outer webs; all the quills except the last tertiary or two with broad white bars on the inner webs; the secondaries with the greater portion of the outer webs green; the tertiaries with the outer webs and a broad tip green; chin, throat, fore neck, sides of the neck and breast deep yellow; remainder of the lower plumage ashy brown, with irregular cross bars of greenish brown.

The *female* differs only in wanting the crimson on the crown, the whole of which is black.

Young males have the red on the head very dull and small in extent.

Bill dark horny; irides sulphur-yellow; legs and feet dark green; claws horny. (*Bingham.*)

Length 13 inches, tail 5·2, wing 6·3, tarsus 1·2, bill from gape 1·7. The female is of about the same size.

Some few birds, both males and females, have a narrow yellow line from the eye over the ear-coverts; these seem to me to constitute a distinct species, for the Woodpeckers of this genus are not, as far as I know, liable to such variations of plumage. I am, however, unwilling, with the scanty information at my command, to bestow a name on the bird without the eye-streak; for, if distinct, it will certainly require to be named. Mr. Elliot's name applies to the streaked bird; Capt. Wardlaw Ramsay's name applies to both, he considering that the streaked bird was the male and the unstreaked one the female; and Mr. Hume's name also applies to both.

Out of fifteen specimens in Mr. Hargitt's collection three have the eye-streak, and in Capt. Wardlaw Ramsay's series two out of ten are so marked. In Mr. Hume's museum one in ten appears to be the average of marked birds.

I think it will be found hereafter that these birds constitute two species. In no case, however, do I see any reason for considering Mr. Hume's eye-

streaked bird distinct from Mr. Elliot's. One of the points Mr. Hume insists upon is that in his bird the eye-streak is white and in Mr. Elliot's yellow; but Mr. Hume himself, when first describing *G. nigrigenis*, distinctly says that the streak is pale yellow; and all the birds I have seen from Burmah have the streak yellow or yellowish. The lengthened tail-coverts of the bird in Mr. Elliot's plate again is obviously a mistake of the artist, for no Woodpecker as yet known has tail-coverts of such a length as compared with the length of the tail.

The Red-rumped Green Woodpecker occurs in the drier portions of the Province from Tonghoo down to Mooleyit mountain in Tenasserim; and it does not appear to be found to the west of the Sittang river except at Tonghoo, where Capt. Wardlaw Ramsay informs me he obtained it commonly all round that station for fifteen miles in every direction.

This bird was first discovered in Cochin China, and Dr. Tiraud states that it is common in that country. It is most probably found in Siam also.

This Woodpecker, according to Mr. Davison, frequents bamboo-jungle and clearings, chiefly on the hills. Capt. Bingham found the nest and eggs in Tenasserim in the Thoungyeen valley in March. The eggs, only two in number, were laid in a hole of a Pynkado tree.

Genus CHRYSOCOLAPTES, *Bl.*

447. CHRYSOCOLAPTES STRICTUS.

THE GOLDEN-BACKED WOODPECKER.

Picus strictus, *Horsf. Trans. Linn. Soc.* xiii. p. 176. *Picus guttacristatus*, *Tick. J. A. S. B.* ii. p. 578. *Picus sultaneus*, *Hodgs. J. A. S. B.* vi. p. 105; *Sundev. Consp. Av. Pic.* p. 79. *Indopicus delesserti*, *Malh. Mem. Acad. Metz*, 1849, p. 343; *id. Mon. Pic.* ii. p. 79, pl. lxiv. fig. 4, 5. *Indopicus sultaneus*, *Malh. t. c.* p. 77, pl. lxiv. fig. 1-3. *Indopicus strictus*, *Malh. t. c.* p. 80, pl. lxv. fig. 1-5. *Chrysocolaptes sultaneus*, *Jerd. B. Ind.* i. p. 281; *Ball, S. F.* ii. p. 391; *Hume, S. F.* iii. p. 64; *Armstrong, S. F.* iv. p. 310; *Inglis, S. F.* v. p. 26; *Anders. Yunnan Exped.* p. 584; *Hume & Dav. S. F.* vi. p. 133; *Hume, S. F.* viii. p. 87. *Chrysocolaptes strictus*, *Salvad. Ucc. Born.* p. 48; *Hume, S. F.* viii. p. 154; *Butler, S. F.* ix. p. 238. *Chrysocolaptes delesserti*, *Hume, Nests and Eggs*, p. 123; *Bourdillon, S. F.* iv. p. 389; *Hume, S. F.* viii. p. 87. *Chrysocolaptes gutticristatus*, *Bl. & Wald. B. Burm.* p. 75.

Description.—*Male.* Feathers at the base of the upper mandible fulvous-

red; forehead, crown, nape and occipital crest deep crimson; hind neck mottled with black and white; back, scapulars, wing-coverts and tertiaries shining golden yellow, the edges of the feathers of a deeper colour; lower back and rump crimson; upper tail-coverts and tail black; primary-coverts and primaries blackish, the inner webs of the latter with white spots; secondaries chiefly golden yellow on the outer webs, brown barred with white on the inner; lores dusky; a white streak from the eye over the ear-coverts, another one from the lores under the eyes and ear-coverts; two black stripes, one from the gape and another from the side of the gonys, uniting and running down the side of the throat, the space between these two lines white; chin and throat white with a narrow mesial black line; ear-coverts black; fore neck white, the feathers edged with black; lower plumage fulvous-white, each feather edged with black, the edgings becoming less distinct on the abdomen and more broken on the vent and under tail-coverts; under wing-coverts white barred with brown.

The *female* differs in having the forehead, crown, nape and occipital crest black, each feather with a round white spot at the tip.

Iris pinkish yellow; eyelids dark slaty brown; bill bluish brown; legs greenish blue; claws horn-colour.

Length 13 inches, tail 4·5, wing 6·4, tarsus 1·2, bill from gape 2·2. The female is of about the same size. These are the dimensions of an average Burmese bird.

It does not seem possible to separate this form of Woodpecker into three or even two species. Birds from all parts are alike in coloration, and nothing but size is left for their separation. Mr. Hume has worked out the question of size so carefully that I prefer to adopt his figures, the more as he has had a much larger series of birds under observation than I have been able to examine. Beginning with the Malay peninsula, Mr. Hume records the lengths of the wings of two male birds, the only two apparently obtained in that part, as 6·15 and 6·3 inches respectively. He gives the wings of Burmese birds as varying from 6·08 to 6·7 inches, and those of the Northern-Indian birds (the true *C. sultaneus*) as from 6·7 to 7·45 inches. The Southern-Indian birds have wings varying from 5·85 to 6·3 inches. The bills of all vary in much the same ratio as the wings. This bird exhibits all those variations in size which are displayed in *Dissemurus paradiseus* (vol. i. p. 225); and the only satisfactory way of dealing with such birds appears to me to be to unite all the races, large and small, under one name.

The Golden-backed Woodpecker is found over every portion of British Burmah, except on the higher mountains.

It extends north through the Indo-Burmese countries into India, and is spread over the greater part of that peninsula. To the south it is found in

Siam and China, in the Malay peninsula and Java, and probably in Sumatra and Borneo.

This Woodpecker affects alike dense forest and clearings, and there are few places where I have not observed it.

Genus TIGA, *Kaup*.

448. TIGA JAVANENSIS.

THE COMMON THREE-TOED WOODPECKER.

Picus javanensis, *Ljungh*, *Act. Stockh.* xviii. p. 134, t. 6; *Sundev. Consp. Av. Pic.* p. 83. *Picus tiga*, *Horsf. Trans. Linn. Soc.* xiii. p. 177. *Picus shorei*, *Vigors*, *P. Z. S.* 1831, p. 175; *Sundev. t. c.* p. 83. *Tiga intermedia*, *Bl. J. A. S. B.* xiv. p. 193. *Brachypternopicus rubropygialis*, *Malh. Rev. Zool.* 1845, p. 400. *Chloropicoides tiga*, *Malh. Mon. Pic.* ii. p. 97, pl. lxxxi. fig. 5-7. *Chloropicoides intermedia*, *Malh. t. c.* p. 99. *Chloropicoides rubropygialis*, *Malh. t. c.* p. 100, pl. lxx. fig. 5. *Chloropicoides shorei*, *Malh. t. c.* p. 101, pl. lxxi. fig. 1-4. *Chrysonotus shorei*, *Jerd. B. Ind.* i. p. 298. *Chrysonotus intermedius*, *Jerd. t. c.* p. 299. *Chrysonotus rubropygialis*, *Jerd. t. c.* p. 299. *Tiga javanensis*, *Salvad. Ucc. Born.* p. 54; *Bl. & Wald. B. Burm.* p. 75; *Tweedd. Ibis*, 1877, p. 288; *Hume & Dav. S. F.* vi. p. 146; *Hume, S. F.* viii. p. 88; *Oates, S. F.* viii. p. 165; *Bingham, S. F.* ix. p. 164. *Tiga shorii*, *Hume, S. F.* iii. p. 73, viii. p. 88. *Tiga intermedius*, *Hume, S. F.* iii. p. 328; *Armstrong, S. F.* iv. p. 311. *Tiga rubropygialis*, *Hume, S. F.* iv. p. 390, viii. p. 88. *Chrysonotus biddulphi*, *Tick., Wald. Ibis*, 1876, p. 344; *Hume, S. F.* v. p. 497.

Description. — *Male.* Forehead, crown, nape and occipital crest deep crimson; hind neck black; back and scapulars golden yellow washed with crimson; rump bright crimson; upper tail-coverts and tail black; wing-coverts and tertiaries golden yellow; primary-coverts and primaries black, the latter with white spots on the inner webs; secondaries chiefly golden yellow on the outer webs, black with white bars on the inner; a band of white from the eye expanding into a patch on the side of the neck; a band of black below this; another band of white from the gape, followed by a band of black from the base of the lower mandible; the two black bands just mentioned joining on the sides of the neck below the white patch; chin white; throat white, with a mesial black line running down the fore neck; both chin and throat frequently strongly tinged with fulvous; lower plumage fulvous-white, each feather margined with black; under wing-coverts white barred with black.

The *female* differs in having the forehead, crown, nape and occipital

crest black, each feather with an elongated white drop near the tip, and in having a duller crimson tinge on the back.

Iris hazel; eyelids plumbeous; bill very dark brown; legs greenish; claws horn-colour.

Length 11·5 inches, tail 4·2, wing 5·8, tarsus 1, bill from gape 1·5. The female is rather smaller.

This species, like the preceding, varies much in dimensions, and there appears to be a perfect gradation in size from the south to the north. Tenasserim birds, according to Mr. Hume, have a wing varying from 5·18 to 5·45 inches in length. Pegu and Arrakan birds, according to my own measurements, have the wing varying from 5·6 to 6·05 inches. I have not been able to examine many Northern-Indian birds; but Mr. Hume remarks of a Kumaon example, with a wing of 6·25 inches, that it was a "huge" specimen; and we may therefore conclude that this length is about the maximum for the wings of Himalayan birds. Southern-Indian specimens are identical in size with those from Tenasserim. No distinctions, moreover, can be based on the coloration of examples from various localities, for the variations in plumage, such as they are, are not correlated with geographical limits; and under these circumstances I do not think any good will result from attempting to keep the two so-called species *T. shorii* and *T. javanensis* distinct.

The Common Three-toed Woodpecker is very abundant in all parts of British Burmah and Karennee.

It is found in the Malay peninsula, Sumatra, Java, Borneo, Cochin China and Siam. It does not appear to have yet been observed in the Indo-Burmese countries nor in the hill-tracts of Eastern Bengal, but it is met with along the whole range of the Himalayas. It has been procured in Central India, and it appears to be abundant over a considerable portion of Southern India.

This is the commonest species of Woodpecker in Burmah, being found in every description of jungle, both near houses and in the wildest forests. It has a very shrill call, and climbs trees in a peculiar jerky manner, frequently pausing for some minutes and remaining perfectly still. I found its nest in Pegu in May in a hole of a tree, with three eggs. Capt. Bingham found the nest in Tenasserim in March.

Genus MICROPTERNUS, *Bl.*

449. MICROPTERNUS PHÆOCEPS.

THE BURMESE RUFOUS WOODPECKER.

Micropternus phaeiceps, *Bl. J. A. S. B.* xiv. p. 195; *Jerd. B. Ind.* i. p. 294; *Hume, S. F.* iii. p. 72; *Bl. & Wald. B. Burm.* p. 77; *Gammie, S. F.* iv. p. 511; *Hume, S. F.* v. p. 480; *Hume & Dav. S. F.* vi. p. 145; *Cripps, S. F.* vii. p. 262; *Scully, S. F.* viii. p. 249. **Phaiopicus blythii** *, *Malh. Rev. Zool.* 1849, p. 534. **Phaiopicus rufinotus**, *Malh. Mon. Pic.* ii. p. 1, pl. xlv. fig. 1-3. **Picus rufinotus**, *Sundev. Consp. Av. Pic.* p. 88. **Micropternus barmannicus**, *Hume, Proc. As. Soc. Beng.* 1872, p. 71; *Bl. & Wald. B. Burm.* p. 77. **Micropternus phaeiceps** (*Bl.*), *Hume, S. F.* viii. p. 88, ix. p. 112; *Bingham, S. F.* ix. p. 164; *Oates, S. F.* x. p. 192.

Description.—*Male.* The whole plumage chestnut-bay; the forehead, crown and nape browner; the back, rump, upper tail-coverts, tail and wings regularly banded with black; the feathers of the chin, throat and sides of the head faintly edged paler; the feathers under and behind the eye tipped with crimson; the feathers of the abdomen, vent, sides of the body and under tail-coverts subterminally dusky.

The *female* differs in wanting the crimson tips to the feathers under and behind the eye, and in having the feathers of the chin, throat and sides of the face more distinctly margined paler.

Very old birds of both sexes have the bars on the wings, tail and upper plumage narrow and interrupted; the feathers of the abdomen and lower plumage in general without the subterminal dark bars.

Iris brown; eyelids plumbeous; bill very dark brown, plumbeous at the base of the lower mandible; legs and feet greyish brown; claws horn-colour.

Length 10 inches, tail 3, wing 4·8, tarsus ·9, bill from gape 1·2. The female is of the same size.

The Burmese Rufous Woodpecker is spread over the whole of British Burmah, but is more abundant in some parts than in others.

It is found in the hill-tracts of Eastern Bengal and along the Himalayas as far as Kumaon, extending south to Central India. It is also, most probably, distributed over the Indo-Burmese countries. To the south it has been met with in the Malay peninsula at Klang.

I have found this Woodpecker most abundant in the evergreen forests; and it is one of the commonest species near Rangoon in the dense orchards

* In publishing this title Malherbe gives his name *rufinotus* as a synonym, and assigns to it the date of 1845.

and pine-apple gardens which surround that town. It feeds largely on those ants which construct hanging nests in trees, and its plumage is generally much smeared with the honey-like matter found in these structures. Mr. Gammie discovered that these Woodpeckers actually lay their eggs in holes bored in these ants' nests, the rightful owners being driven away or, more probably, eaten up. For Woodpeckers this species is remarkably silent, seldom uttering a note, and creeping about in a very quiet stealthy way.

450. MICROPTERNUS BRACHYURUS.

THE MALAYAN RUFOUS WOODPECKER.

Picus brachyurus, Vieill. *Nouv. Dict. d'Hist. Nat.* xxvi. p. 103. *Picus squamigularis*, Sundev. *Consp. Av. Pic.* p. 89. *Micropternus brachyurus*, Hume, *S. F.* v. p. 481; *Hume & Dav. S. F.* vi. p. 145; *Hume, S. F.* viii. p. 88.

Description.—*Male.* Similar in general appearance to *M. phaeiceps*, but much smaller; the black bars on the tail broader; the chin, throat and cheeks blackish, broadly and conspicuously margined with whitish; the head less brown and more of the colour of the back.

The *female* differs in wanting the crimson tips to the feathers under and behind the eye.

Length about 8 inches, tail 2·6, wing 4·5, tarsus ·8, bill from gape 1·1. These are the measurements of a male bird from the island of Salanga collected by Capt. Weber.

I follow Mr. Hume in identifying the small Tenasserim race of this bird with *M. brachyurus*, Vieill. It is quite distinct in size and coloration from the bird met with in Pegu and other parts of Burmah. *M. badius*, from Borneo, may be recognized by the male having the feathers all round the eye tipped with crimson, by being still smaller than *M. brachyurus* (wing about 4·2 inches), by having the margins of the feathers of the chin and throat narrow and indistinct, and by having the tail nearly entirely black. *M. fokiensis*, from China, appears to be characterized by its deeper colour and by the abdomen being brown, not rufous.

The Malayan Rufous Woodpecker is found in Tenasserim from Mergui southwards to Malewoon. It extends down the Malay peninsula to Singapore, and, according to Dr. Tiraud, it is the species which is found in Cochin China; but he does not seem certain about the identification of his birds with *M. brachyurus* apud Hume.

Genus MEIGLYPTES, *Swains.*

451. MEIGLYPTES GRAMMITHORAX.

HORSFIELD'S BARRED WOODPECKER.

Phaiopicus grammithorax, *Malh. Mon. Pic.* ii. p. 12, pl. xlviii. fig. 4-6. **Picus tristis** (*Horsf.*), *Sundev. Consp. Av. Pic.* p. 91 (part.). **Meiglyptes tristis** (*Horsf.*), *Wald. Ibis*, 1872, p. 365, 1877, p. 290 (part.); *Salvad. Ucc. Born.* p. 56 (part.); *Bl. B. Burm.* p. 77 (part.); *Hume & Dav. S. F.* vi. p. 131 (part.); *Hume, S. F.* viii. p. 87 (part.). **Meiglyptes grammithorax**, *Nicholson, Ibis*, 1879, p. 165; *Hume, S. F.* viii. p. 497.

Description.—*Male.* Lores, the feathers round the eyes and the chin yellowish buff; a patch of crimson on each side the base of the lower mandible; the whole head and neck all round black, closely barred with narrow lines of pale buff; the ear-coverts tinged with yellowish; back, scapulars, wing-coverts and tertiaries black, rather broadly barred with yellowish buff; rump plain yellowish buff; tail-coverts black barred with buff; primaries, secondaries and the feathers of the tail black, both webs with bar-like buff spots; lower plumage from the neck downwards black barred with buff, the bars broader than those on the throat; under wing-coverts plain buff.

The *female* differs in wanting the crimson patches at the base of the lower mandible.

The legs and feet dirty, dingy or glaucous green; claws plumbeous; bill black; edge of eyelids black; irides in about half the specimens of each sex deep brown, in the other half dull red. (*Davison.*)

Length 6·5 inches, tail 2·2, wing 3·7, tarsus ·7, bill from gape ·9. The female is of about the same size.

This species has long been confounded with *M. tristis* from Java. Mr. Nicholson has shown that the two are quite distinct. The latter differs in having the under plumage black from the lower throat to the abdomen, and in having the lores and the feathers round the eye finely barred with black and buff like the other parts of the head.

Horsfield's Barred Woodpecker was observed by Mr. Davison in Tenasserim at Bankasoon and the neighbourhood, and also at the base of Nwalabo mountain; and Mr. Blyth received it from Mergui.

It extends down the Malay peninsula, and is found in Sumatra and Borneo; Dr. Tiraud procured it in Cochin China.

This small Woodpecker, according to Mr. Davison, is usually found in dense forest, and it does not appear ever to descend to the ground.

452. MEIGLYPTES JUGULARIS.

BLYTH'S BLACK-AND-FULVOUS WOODPECKER.

Meiglyptes jugularis, *Bl. J. A. S. B.* xiv. p. 195; *Sundev. Consp. Av. Pic.* p. 93.
Phaiopticus jugularis, *Malh. Mon. Pic.* ii. p. 11. *Meiglyptes jugularis*,
Hume, S. F. iii. p. 63; *Bl. & Wald. B. Burm.* p. 77; *Hume & Dav. S. F.* vi.
 p. 132; *Hume, S. F.* viii. p. 87; *Bingham, S. F.* ix. p. 161.

Description.—*Male.* The forehead, crown, sides of the head, chin and throat black, narrowly barred with buff; the bars on the throat broader and frequently interrupted; an indistinct patch of crimson on either side the base of the lower mandible; sides and back of the neck, a large patch on either side the breast, the rump, all the wing-coverts next the body and the bases of the tertiaries buff; remainder of the wing-coverts black tipped with buff; a full occipital crest, back, upper tail-coverts, tail and the whole lower plumage black; the sides of the body obsoletely barred with buff; quills black, the outer webs of the primaries and secondaries sparingly spotted with buff, the inner webs with bar-like spots of white; tips of the tertiaries black, with one or two bars of buff; under wing-coverts buff.

The *female* differs in wanting the crimson patch on either side the base of the lower mandible.

Bill black; iris dark brown; eyelids dark plumbeous; legs dull bluish; claws horny brown.

Length 7·6 inches, tail 2·3, wing 4, tarsus ·8, bill from gape 1. The female is of about the same size.

Blyth's Black-and-Fulvous Woodpecker seems to be found over the whole of British Burmah. I procured one specimen on the Arrakan hills, whence also Mr. Blyth obtained it, and I also got it on the Pegu hills in the ever-green forests. Mr. Davison observed it in Tenasserim as far south as Tavoy, and Capt. Bingham records it from the Thoungyeen valley.

It is noted from Siam by Mr. Blyth, and is not known as yet to occur elsewhere outside the limits of British Burmah.

This Woodpecker appears to be found principally in dense forests, but Mr. Davison informs us that he has observed it also in clearings and open jungle. I noticed nothing remarkable about its habits.

453. MEIGLYPTES TUKKI.

THE BUFF-NECKED BARRED WOODPECKER.

Picus tukki, *Less. Rev. Zool.* 1839, p. 167. **Hemicircus brunneus**, *Eyton, P. Z. S.* 1839, p. 106. **Picus brunneus**, *Sundev. Consp. Av. Pic.* p. 91. **Phaiopicus pectoralis** (*Licht.*), *Malh. Mon. Pic.* ii. p. 8, pl. xlvii. fig. 5-7. **Meiglyptes marginatus** (*Reinw.*), *Wald. Ibis*, 1871, p. 165. **Meiglyptes tukki**, *Salvad. Ucc. Born.* p. 57; *Hume & Dav. S. F.* vi. p. 132; *Hume, S. F.* viii. p. 87.

Description.—*Male.* A patch on either side at the base of the lower mandible crimson; forehead, crown, upper neck and sides of the head olive-brown; chin and throat black, narrowly and closely barred with buff; fore neck black; a broad streak down each side of the neck creamy buff; the whole of the upper plumage, wings and tail brown narrowly barred with buff; the bars on the tail, primaries and secondaries interrupted; upper breast blackish, very narrowly barred with buff; remainder of lower plumage buffy brown barred with lighter buff, the bars becoming almost obsolete on the abdomen; under wing-coverts plain buff.

The *female* differs in wanting the crimson patches at the base of the lower mandible, and in always wanting the reddish tinge on the sides of the forehead, which is frequently present in the male.

Legs and feet dull or brownish green; claws a little paler; irides brown; upper mandible black; lower mandible pale plumbeous blue, in some greenish; in many the tip is dark plumbeous, and the base is also at times a darker plumbeous. (*Davison.*)

Length 8 inches, tail 3, wing 4·1, tarsus ·8, bill from gape 1·1. The female is of the same size.

The Buff-necked Barred Woodpecker was observed by Mr. Davison in the extreme southern portion of Tenasserim at Bankasoon.

It extends down the Malay peninsula, and is found in the islands of Sumatra and Borneo.

The Woodpeckers of this genus bear a superficial resemblance to those of the genus *Hemicircus*; but they may be known at once by the bill, the culmen of which is much curved, and by the absence of plumes over the nostrils.

Order IV. COCCYGES.

Suborder COCCYGES ANISODACTYLÆ.

Family UPUPIDÆ.

Genus UPUPA, *Linn.*

454. UPUPA LONGIROSTRIS.

THE BURMESE HOOPOE.

Upupa longirostris, *Jerd. B. Ind.* i. p. 393; *Bl. B. Burm.* p. 69; *Hume, S. F.* iii. p. 89; *Armstrong, S. F.* iv. p. 315; *Inglis, S. F.* v. p. 29; *Oates, S. F.* v. p. 149; *Hume & Dav. S. F.* vi. p. 202; *Oates, S. F.* vii. p. 41; *Hume, S. F.* viii. p. 90; *Oates, S. F.* x. p. 199. *Upupa ceylonensis* (*Reich.*), *apud David et Oust. Ois. Chine*, p. 79. *Upupa indica* (*Bonap.*), *apud Anders. Yunnan Exped.* p. 578.

Description.—*Male and female.* Forehead, crown, crest and sides of the head and neck cinnamon-rufous, the crest-feathers broadly tipped with black; chin, throat, breast and upper abdomen rufous-fawn; lower abdomen whitish, streaked with brown; vent and under tail-coverts pure white, some of the latter occasionally tipped with black; lesser wing-coverts like the head; median coverts black, tipped with white; greater coverts black, with a bar of white across them; primary-coverts black; primaries black, with a broad bar of white across both webs near the tips; the first primary with or without a white spot on the inner web; the earlier secondaries barred with white on the inner webs, those nearer the body on both webs; tertiaries brown, tinged and edged with rufous; rump and scapulars barred with black and rufous, followed on the rump by a white band; upper tail-coverts black; back dull vinous; tail black, with a band of white across it.

Iris reddish brown or brown; bill dark brown, pinkish at base; legs and claws dark plumbeous.

Length 12 inches, tail 4·4, wing 5·6, tarsus ·85, bill from gape 2·6. The female is smaller, the bill averaging 2·3 or so.

The Burmese Hoopoe is a species which, in my opinion, can always be discriminated from its allies. From *U. epops* it differs in not having any white on the crest in front of the black tip. From *U. nigripennis* it differs in being larger, and in having a bill of much greater length. Mr. Hume says that he has never met with *U. nigripennis* with a longer bill than 2·1;

in the present species, even in the young, it is never shorter than 2·2, and in the adult male it reaches 2·7.

The Burmese Hoopoe is very common over the whole of the plains of British Burmah, and is also found in the lower ranges of hills.

It extends through the Indo-Burmese countries to the hill-tracts of Eastern Bengal; it is found in China, in Siam and Cochin China, and for a short distance down the Malay peninsula, Mr. Davison having shot it at Tonka.

This Hoopoe is found in all those parts of the country which are dry and abound in ants; it frequents alike forests and open plains, gardens and waste land, and appears to be a constant resident. I have always met with it most abundantly in the dry forests called "Ingdein." It is entirely a ground-feeder, eating ants and picking them up with great speed and facility by means of its long bill. The note, which is of a very peculiar character, is uttered chiefly during the breeding-season from February to April. When uttering it, the bird puffs out its neck and bobs its head.

I found the nest in March and April. The eggs are laid on the bare wood in a natural hollow in a decayed tree; they were three in number in the two instances in which I found the nests, but there are said to be as many as seven occasionally. They are of a blue colour.

Family MEROPIDÆ.

Genus NYCTIORNIS, *Swains.*

455. NYCTIORNIS ATHERTONI.

THE BLUE-BEARDED BEE-EATER.

Merops athertonii, *Jard. & Selb. Ill. Orn.* ii. pl. 58. **Nyctiornis athertoni**, *Jerd. B. Ind.* i. p. 211; *Hume, Nests and Eggs*, p. 103; *Bl. B. Burm.* p. 73; *Hume & Dav. S. F.* vi. p. 68; *Anders. Yunnan Exped.* p. 583; *Hume, S. F.* viii. p. 85; *Bingham, S. F.* ix. p. 472.

Description.—*Male and female.* The whole upper plumage, wings, tail, sides of the head and neck deep green; the feathers of the forehead and crown tipped with blue and the back tinged in places with blue; a broad line down the front from the chin to the breast deep blue, the feathers lengthened and each one broadly tipped with ultramarine-blue; breast, abdomen and sides of the body buff, streaked with greenish; vent and

under tail-coverts plain buff; under aspect of tail yellowish buff, tipped with brown; under wing-coverts bright buff, the inner webs of the quills of the wing mostly brown.

Bill horny, light at the base below; iris brown; legs fleshy brown, tinged with green; claws horn-colour.

Length 14 inches, tail 6·2, wing 5·8, tarsus ·7, bill from gape 2·3. The female is considerably smaller.

The Blue-bearded Bee-eater occurs sparingly throughout British Burmah, frequenting forest country and being a constant resident. I procured a few specimens in the Arrakan hills near Nyoungyo, and I met with it near Pegu Town once or twice. Mr. Blanford got it at Bassein, and Capt. Wardlaw Ramsay at Tonghoo and on the Karin hills. Mr. Davison appears to have observed it at numerous places in Tenasserim between Pahpoon and Amherst, and Capt. Bingham in the Thoungyeen valley.

It extends through the Indo-Burmese countries into India, and is found over a considerable portion of that peninsula. According to Dr. Tiraud, it is also met with in Cochin China.

This handsome Bee-eater frequents forests, but does not appear to be anywhere numerous. It perches on lofty trees, and sallies out after flying insects, returning again to the same perch. Capt. Bingham found the eggs in Tenasserim in April; they were laid in a chamber at the end of a long tunnel dug in a bank, and were four in number. It is suggested that this bird also lays its eggs in the holes of trees. The eggs of all Bee-eaters are white.

456. NYCTIORNIS AMICTA.

THE RED-BEARDED BEE-EATER.

Merops amictus, Temm. *Pl. Col.* 310. *Nyctiornis amicta*, *Salvad. Ucc. Born.* p. 91; *Bl. & Wald. B. Burm.* p. 73; *Hume & Dav. S. F.* vi. p. 69; *Hume, S. F.* viii. p. 85; *Bingham, S. F.* ix. p. 153; *Kelham, Ibis*, 1881, p. 378. *Nyctiornis malaccensis*, *Cab. & Hein. Mus. Hein.* ii. p. 133.

Description.—*Male.* Feathers impending the nostrils greenish blue; forehead, lores and crown of head to a little beyond the eyes shining lilac-rose, shaded with purplish posteriorly; feathers on the eyelids dull blue; angle of the chin bluish; cheeks, throat and a broad band running down to the base of the breast crimson, the feathers of the breast with black centres, which show up in places; sides of the head, neck and breast, and all the upper plumage, wings and tail dark green, the inner webs of the

quills brownish and edged at their bases with ochraceous ; abdomen, vent, under tail-coverts and sides of the body pale green ; under wing-coverts bright buff ; underside of tail bright yellow-buff, broadly tipped with black.

The *female* differs in having the forehead and lores the same crimson as the throat, the lilac-rose colour being confined to a mere band across the crown ; the feathers on the eyelids are green, not blue ; the underside of the tail is duller yellow and the black tips shorter ; the crimson on the breast is narrower in extent.

The *young* are green throughout.

Legs and feet pale green, often dingy, sometimes bluish ; bill black, whity brown at base from nostril to gape of upper mandible, and lower mandible from about angle of gonys to base ; irides bright yellow to orange-yellow ; eyelids dark plumbeous green. (*Davison*.)

Length 13 inches, tail 5·3, wing 5·4, tarsus ·6, bill from gape 2·5. The female is slightly smaller, the bill measuring about 2·1.

The Red-bearded Bee-eater occurs in Tenasserim from the south up to Moulmein, and Capt. Bingham also found it in the Thoungyeen valley. It appears to be tolerably common, and is probably resident.

It ranges through the Malay peninsula to Sumatra and Borneo.

This fine Bee-eater, according to Mr. Davison, is found singly or in couples, not in flocks. It has a hoarse note, and when uttering it the bird stretches out its neck, puffs out its throat and bobs its head up and down. It probably breeds in March and April.

Genus MEROPS, *Linn.*

457. MEROPS VIRIDIS.

THE GREEN BEE-EATER.

Merops viridis, *Linn. Syst. Nat.* i. p. 182 ; *Jerd. B. Ind.* i. p. 205 ; *Hume, Nests and Eggs*, p. 99 ; *id. S. F.* i. p. 167, iii. p. 49 ; *Bl. B. Burm.* p. 73 ; *Armstrong, S. F.* iv. p. 304 ; *Hume & Dav. S. F.* vi. p. 67 ; *Anders. Yunnan Exped.* p. 582 ; *Legge, Birds Ceylon*, p. 309 ; *Hume, S. F.* viii. p. 85 ; *Bingham, S. F.* ix. p. 152. **Merops ferrugiceps**, *Hodgs. in Gray's Zool. Misc.* p. 82.

Description.—*Male and female.* Forehead, crown, nape, upper back and ear-coverts chestnut, tinged with green on the forehead and crown ; lores and a streak under the eye and ear-coverts black ; lower back, scapulars, wing-coverts and rump bright green ; tertiaries and upper tail-coverts green slightly tipped with blue ; primaries greenish on the outer webs,

rufous on the inner, all tipped dusky; secondaries all rufous, broadly tipped with black, and faintly edged exteriorly with green; tail-feathers bronze-colour, tipped dusky and narrowly edged with blue; a line of bright blue under the black of the face; cheeks, chin and throat greenish blue; below this an indistinct rufous collar, then a band of black; sides of the breast tinged with buff; lower plumage light green tinged with verdigris; under wing-coverts chestnut.

Iris bright red; bill black, becoming brown at the gape; eyelids smoky brown; mouth dusky flesh-colour; legs pinkish grey; claws horn-colour.

Length 9·2 inches, tail 4·7, wing 3·7, tarsus ·4, bill from gape 1·3. The female is of the same size.

The only variation in plumage this bird is liable to is in the colour of the head. In Burmah the head is a deep rufous, and in Scinde, at the other end of its range, the rufous tinge is almost entirely wanting.

The Green Bee-eater is abundant over the whole of British Burmah except in the south of Tenasserim, where, according to Mr. Davison, it is not found south of Mergui, nor does it in any part of the country ascend the higher mountains.

It is found throughout the Indo-Burmese countries and over the whole peninsula of India and Ceylon. It has not yet been recorded from China, but it occurs in Siam and Cochin China.

This Bee-eater is one of the commonest and best known birds of Burmah, being found in every part of the country. Its habits are too well known to require any description. It breeds in April and May, making a tunnel in any convenient bank and laying its white eggs, four or five in number, in a small chamber at the end of the tunnel, which varies in length from two to five feet.

458. MEROPS PHILIPPINUS.

THE BLUE-TAILED BEE-EATER.

Merops philippinus, *Linn. Syst. Nat.* ed. 13, i. p. 183; *Hume, Nests and Eggs*, p. 101; *Salvad. Ucc. Born.* p. 89; *Wald. Trans. Zool. Soc.* ix. p. 149; *Bl. B. Burm.* p. 72; *Oates, S. F.* v. p. 143; *David et Oust. Ois. Chine*, p. 72; *Legge, Birds Ceylon*, p. 306; *Hume & Dav. S. F.* vi. p. 67; *Hume, S. F.* viii. p. 85; *Bingham, S. F.* ix. p. 152; *Kelham, Ibis*, 1881, p. 378. *Merops daudini*, *Cuvier, Règn. Anim.* 1829, i. p. 442; *Hume, S. F.* ii. p. 162, iii. p. 49; *Armstrong, S. F.* iv. p. 304. *Merops philippensis* (*L.*), *Jerd. B. Ind.* i. p. 207; *Anders. Yunnan Exped.* p. 581.

Description.—*Male and female.* Lores and a broad line through the eyes and ear-coverts black; above this a narrow line of pale blue, below it a

broad line of bluish white ; forehead, crown, nape and back dull green with a coppery tinge ; rump and upper tail-coverts bright blue ; central tail-feathers blue, elongated, the projecting portion black ; the other tail-feathers blue, the inner webs more or less dusky ; tertiaries bluish green ; primaries and secondaries green on the outer webs, more or less rufous on the inner ones, all tipped with black ; wing-coverts green, brighter at the edges ; chin yellow ; throat chestnut ; lower plumage green with a rufous tinge ; under tail-coverts pale blue ; under wing-coverts bright buff.

Bill black ; iris bright red ; eyelids grey ; mouth flesh-colour ; legs plumbeous ; claws horn-colour.

Length 12 inches, tail 5·7, wing 5·5, tarsus ·5, bill from gape 2. The female is of about the same size.

M. sumatranus from the Malay peninsula belongs to this genus, the members of which have the central tail-feathers lengthened. It has the head and back chocolate-colour and the throat blue.

The Blue-tailed Bee-eater is found over the whole of British Burmah, being very abundant in Arrakan and Pegu and somewhat rare in Tenasserim. It appears to be partially migratory in Tenasserim ; but in Pegu I have observed it during the greater portion of the year, and I think it is resident.

This bird has a wide range, being found in the Indo-Burmese countries and over the whole peninsula of India with Ceylon and the Andaman Islands. It is met with in China, Cochin China, Siam, the Malay peninsula, Sumatra, Java, Borneo, Celebes, the Philippines and some of the further islands.

This Bee-eater is usually seen in large flocks, flying backwards and forwards in graceful sweeps for long periods without resting, and catching its insect prey entirely in the air. It is particularly addicted to large rivers, in the perpendicular banks of which it digs its nest-hole, which is a roomy chamber at the end of a tunnel three to seven feet in length ; and the eggs are four or five in number. Immense numbers of these birds usually nest together, each pair, however, having its own gallery and nest.

Genus **MELITTOPHAGUS**, *Boie*.**459. MELITTOPHAGUS LESCHENAUTI.**

THE CHESTNUT-HEADED BEE-EATER.

Merops leschenaulti, *Vieill. Nouv. Dict. d'Hist. Nat.* xiv. p. 17; *Anders. Yunnan Exped.* p. 582; *Hume & Dav. S. F.* vi. p. 68. **Merops quinticolor** (*V.*), *Jerd. B. Ind.* i. p. 208; *Wald. Ibis*, 1873, p. 301. **Merops daudini** (*Cuv.*), *Swinhoe, P. Z. S.* 1871, p. 348. **Merops swinhoei**, *Hume, Nests and Eggs*, p. 102; *id. S. F.* ii. p. 163, iii. p. 50; *Armstrong, S. F.* iv. p. 305; *Legge, Birds Ceylon*, p. 312; *Hume, S. F.* vii. p. 455, viii. p. 85; *Parker, S. F.* ix. p. 478. **Merops erythrocephalus** (*Gm.*), *Bl. & Wald. B. Burm.* p. 72.

Description.—*Male and female.* Forehead, crown, nape, upper back and ear-coverts bright chestnut; lores black, continued as a band under the eye and ear-coverts; wing-coverts, lower back and tertiaries green, the latter tipped with bluish; rump and upper tail-coverts pale shining blue; primaries and secondaries green, rufous on the inner webs, and all tipped dusky; central tail-feathers bluish on the outer, and green on the inner webs; the others green, margined on the inner web with brown and all tipped dusky; sides of face, chin and throat yellow; below this a broad band of chestnut extending to the sides of the neck and meeting the chestnut of the upper plumage; below this again a short distinct band of black and then an ill-defined band of yellow; remainder of lower plumage green, tipped with blue, especially on the vent and under tail-coverts.

Iris crimson; bill black; legs dusky black; claws dark horn-colour.

Length 8·5 inches, tail 3·5, wing 4·2, tarsus 1·4, bill from gape 1·7. The female is of about the same size.

Viellot received Bee-eaters of this form both from Java and Ceylon, but the birds appear to have got mixed up: most probably in his day few or no birds were labelled. In any case, he recognized two species and described them in great detail. Of the bird which he thought came from Java, but which in reality must have been received from Ceylon or some other part of India, he says, “une plaque triangulaire d’un roux jaunâtre couvre la gorge,” and “la queue est d’un blue-vert en dessus.” This appears to me to fix the species beyond all doubt; and although he refers to Levaillant’s plate, which represents a Javan bird with the whole throat yellow, I think more weight should be attached to an elaborate description than to a mere detail of synonymy, and I therefore retain his name in preference to Mr. Hume’s.

The Chestnut-headed Bee-eater is sparingly distributed throughout the whole province.

It is found in Siam and Cochin China and it has also occurred in China.

It extends down the Malay peninsula as far as Penang; but at Perak Lieut. Kelham appears to have obtained the Javan species, for of one specimen he writes, "chin and throat pale yellow, bounded below by a dark bar" (Ibis, 1881, p. 377).

To the north it ranges through the Indo-Burmese countries into India, over the greater portion of which country and Ceylon it is found more or less abundantly.

This Bee-eater is found in forests or well-wooded parts of the country in small flocks. It has the usual habits of the Bee-eaters, perching on commanding branches and other objects and catching insects on the wing.

These birds breed in societies in the holes of river-banks or old quarries and pits, and they lay from four to six white eggs.

The Javan species, *M. quinticolor*, differs in having the whole space from the bill down to the black pectoral band pure yellow without any chestnut, and in having the tail blue.

Family CORACIIDÆ.

Genus CORACIAS, *Linn.*

460. CORACIAS AFFINIS.

THE BURMESE ROLLER.

Coracias affinis, *McClell.* *P. Z. S.* 1839, p. 164; *Jerd. B. Ind.* i. p. 217; *Bl. B. Burm.* p. 72; *Hume, S. F.* iii. p. 50; *Armstrong, S. F.* iv. p. 305; *Oates, S. F.* v. p. 143; *Anders. Yunnan Exped.* p. 581; *Hume & Dav. S. F.* vi. p. 72; *Oates, S. F.* vii. p. 40; *Hume, S. F.* viii. p. 85; *Brooks, S. F.* viii. p. 467.

Description.—*Male and female.* Forehead, crown and nape green, tinged with blue, brighter over the eyes; hind neck, back, scapulars and tertiaries greenish brown; rump purplish blue; upper tail-coverts bright cærulean blue; cheeks, chin and throat purple, with shining blue shaft-stripes; ear-coverts, sides of the neck and breast vinaceous; axillaries and under wing-coverts deep purple; abdomen, vent and under tail-coverts bluish green; central tail-feathers green, the others purple on the basal half or two thirds, pale blue on the remainder; lesser and median wing-coverts deep purple; greater coverts purplish brown, edged and tipped with greenish blue; quills rich purple, the first four primaries with a broad

band of pale blue near the tip; the outer webs of the later primaries and all the secondaries the same light blue for about an inch below the coverts; primary-coverts light blue.

Bill dark brownish black; mouth yellow; edges of the eyelids, lores and skin at the back of the eye yellowish orange; iris brown; legs yellowish brown; claws black.

Length 13 inches, tail 5·2, wing 7·4, tarsus 1·1, bill from gape 1·9. The female is of about the same size.

The Burmese Roller, or Blue Jay as it is usually termed by residents in Burmah, occurs commonly over the whole Province except in the extreme south of Tenasserim, where Mr. Davison did not observe it.

It is found in Siam, and Dr. Tiraud states that it is very common in Cochin China. It extends through the Indo-Burmese countries up to Assam and westerly through Eastern Bengal as far as Calcutta. In India it is replaced by *C. indicus*; and the two appear to interbreed in the territory where they meet.

This Roller is a very familiar and well-known bird, and is found in almost every portion of the Province except in the interior of the larger forests. It prefers compounds, gardens and places where the trees are not very thickly placed. Perched usually on a dead branch it likes to have a good view all round, in order the more easily to detect the larger insects, which it catches by gliding to the ground. After killing and eating its prey, it returns to the same or a similar perch.

This bird breeds in March and April, laying four or five glossy white eggs in a natural hollow in a tree at various heights from the ground.

Genus EURYSTOMUS, Vieill.

461. EURYSTOMUS ORIENTALIS.

THE BROAD-BILLED ROLLER.

Coracias orientalis, Linn. *Syst. Nat.* i. p. 159. *Eurystomus orientalis*, Jerd. *B. Ind.* i. p. 219; *Hume, Nests and Eggs*, p. 105; *id. S. F.* ii. p. 164; *Salvad. Ucc. Born.* p. 105; *Bl. B. Burm.* p. 72; *David et Oust. Ois. Chine*, p. 73; *Wardlaw Ramsay, Ibis*, 1877, p. 457; *Hume & Dav. S. F.* vi. p. 72; *Legge, Birds Ceylon*, p. 285; *Hume, S. F.* viii. p. 85; *Bingham, S. F.* ix. p. 153; *Kelham, Ibis*, 1881, p. 379; *Oates, S. F.* x. p. 186.

Description.—*Male and female.* Forehead, crown and nape dark brown with a tinge of greenish blue; from the nape the greenish blue tinge becoming more decided on the back, scapulars, tertiaries, the wing-coverts,

rump and upper tail-coverts; the whole lower plumage tolerably clear greenish blue, duller on the breast and brighter on the vent, under tail-coverts and under wing-coverts; throat and upper breast with numerous broad shaft-stripes of glistening violet-blue; secondaries, primaries and their coverts black, the first six primaries with a patch of light blue at their bases; the next primary with a smaller patch of the same colour; tail black, more or less tinged with purple at the bases of the feathers; underside of tail and wings suffused with purple.

Bill, legs and feet deep vermilion; the tip of the bill black; iris dark brown; gape yellowish.

Length 12 inches, tail 4·4, wing 7·6, tarsus ·7, bill from gape 1·7. The female is of the same size or even larger than the male.

The Broad-billed Roller is locally distributed over the greater part of Burmah. Mr. Blyth records it from Arrakan; I observed it in Pegu in the hills north of Pegu Town, at Tonghoo and at Shwaygheen; Capt. Wardlaw Ramsay got it on the Karin hills, and Mr. Blanford at Bassein; Mr. Davison states that it is confined to the southern portion of Tenasserim, but Capt. Bingham found it in the Thoungyeen valley.

To the north of Burmah it ranges through the Indo-Burmese countries into India, and is found over a considerable portion of that country and Ceylon. To the east it is found in China, Siam and Cochin China, and it extends down the Malay peninsula to Sumatra, Java, Borneo and some of the further islands.

The Broad-billed Roller is comparatively rare, and is only found in forest country. It appears to be almost crepuscular in its habits, being indolent and little on the move during the day. It perches on dead branches, and catches insects both by flying at them and by pouncing on them on the ground. It is said to breed in holes of trees, and its eggs are probably white.

Family **ALCEDINIDÆ.**Subfamily **ALCEDININÆ.**Genus **ALCEDO, Linn.****462. ALCEDO BENGALENSIS.****THE LITTLE INDIAN KINGFISHER.**

Alcedo bengalensis, *Gm. Syst. Nat.* i. p. 450; *Jerd. B. Ind.* i. p. 230; *Sharpe, Mon. Alced.* p. 11, pl. 2; *Hume, Nests and Eggs*, p. 107; *Hume & Henders. Lah. to Yark.* p. 178; *Salvad. Ucc. Born.* p. 92; *Hume, S. F.* i. pp. 168, 169, iii. p. 52; *Bl. B. Burm.* p. 71; *Armstrong, S. F.* iv. p. 307; *David et Oust. Ois. Chine*, p. 74; *Legge, Birds Ceylon*, p. 292; *Anders. Yunnan Exped.* p. 580; *Wardlaw Ramsay, Ibis*, 1877, p. 457; *Hume & Dav. S. F.* vi. p. 81; *Hume, S. F.* viii. p. 86; *Bingham, S. F.* ix. p. 155.

Description.—*Male and female.* Forehead, crown and nape blackish banded with pale blue; a band from the nostrils through the eye to the end of the ear-coverts bright rufous; cheeks and a band under the ear-coverts blackish mottled with blue; a patch of white on each side the neck; chin and throat white; under plumage and under wing-coverts bright rufous or chestnut; centre of the back, rump and upper tail-coverts glistening blue; wing-coverts dark brown speckled with blue; quills dark brown edged with blue; scapulars dull brownish blue; tail pale blue.

Bill dark blackish brown, tinged with reddish at the gape; mouth salmon-colour; iris brown; eyelids plumbeous; legs orange-red; claws dark horn.

Length 6·8 inches, tail 1·45, wing 2·75, tarsus ·35, bill from gape 1·9. The female is quite as large as the male, but has the base of the lower mandible reddish.

The amount of banding on the head and the intensity of colouring on both the upper and under plumages vary much in this species; they are not, however, dependent on sex, but probably on age. *A. ispida*, the common European Kingfisher, differs in being larger, with a proportionately smaller bill and is also duller in coloration.

The Little Indian Kingfisher is found in all the low-lying parts of Burmah and Karennee, except perhaps in those portions of the former which lie immediately near the sea.

Elsewhere it has an immense distribution, extending on the west as far as Eastern Africa, on the north to Siberia and Japan, and ranging thence to China, Siam, Cochin China, the Malay peninsula, and most of the islands of the Malay archipelago.

This small and well-known Kingfisher frequents streams of running water, canals, ponds and ditches. It is not an inhabitant of forests, being almost always found in comparatively open country. It catches small fishes either by darting on them from a perch on the side of the water or by poisoning itself in the air in midstream and making a sudden plunge.

It lays its eggs, which are sometimes as many as seven, in a chamber at the end of a narrow tunnel bored by the bird itself in the bank of a stream or of a well, and in this latter situation Capt. Wardlaw Ramsay found the eggs near Rangoon. The eggs of this and of all other Kingfishers are glossy white and spherical in shape. In Burmah it probably breeds from March to June.

A. grandis, from Sikhim, is similar in general appearance to the present bird, but is of very bright coloration and large size, the wing being nearly four inches in length. It is of extreme rarity.

463. *ALCEDO ASIATICA*.

THE MALAYAN KINGFISHER.

Alcedo asiatica, Swains. Zool. Ill. 1st ser. i. pl. 50; Sharpe, Mon. Alced. p. 23, pl. 5; Ball, S. F. i. p. 59; Hume, S. F. ii. pp. 174, 494, iv. p. 383; Bl. & Wald. B. Burm. p. 71. *Alcedo meninting*, Horsf. Trans. Linn. Soc. xiii. p. 172; Salvad. Ucc. Born. p. 93; Oates, S. F. v. p. 143; Hume & Dav. S. F. vi. p. 83; Hume, S. F. viii. p. 86; Oates, S. F. x. p. 188. *Alcedo rufigastra*, Wald. Ann. Nat. Hist. ser. 4, xii. p. 487; *id.* Ibis, 1874, p. 136. *Alcedo beavani*, Wald. Ann. Nat. Hist. ser. 4, xiv. p. 158; *id.* Ibis, 1875, p. 461; Hume, S. F. iv. p. 287; Hume & Dav. S. F. vi. p. 84; Hume, S. F. viii. p. 36, ix. p. 247.

Description.—*Male*. A patch on the lores ferruginous, bordered below by a narrow black line; sides of the head bright blue; a long patch of white on each side of the neck; forehead, crown and nape black banded with bright blue; back, rump and upper tail-coverts shining cobalt; scapulars dull blue with bright blue tips; winglet and primary-coverts black; upper wing-coverts blue, each feather tipped with brighter blue; primaries black, rufous on the inner webs; secondaries and tertiaries brown, washed with blue on the outer webs; chin and throat white tinged with buff; remainder of lower plumage bright chestnut, some of the feathers on the sides of the breast tipped with blue.

The *adult female* does not differ from the male as is usually asserted; but the blue cheeks and ear-coverts are not assumed so quickly as in the male. Traces of ferruginous are visible in these parts until the bird is aged.

The *young bird* differs in having the cheeks and ear-coverts ferruginous:

in males the blue on these parts is assumed quickly, in females very slowly and some trace of ferruginous in these latter is generally present.

Iris dark brown; eyelid dark grey; gape and base of bill orange; remainder of bill black; legs bright red; claws red. The fully adult female has the bill the same colour as the male. Young birds have most of the lower mandible red and the tips of both white.

Length 6·2 inches, tail 1·2, wing 2·5, tarsus ·3, bill from gape 1·8. The female is of the same size.

From an examination of a magnificent series of these birds in the British Museum and of a dozen or more specimens shot by myself in Burmah, I have come to the conclusion that there is only one species inhabiting India, Burmah and the Indian archipelago. The bars on the head vary in colour from rich purple in Borneo, Java &c. to rich blue or even bluish green in Burmah; but the transition is very gradual, and some of the Burmese birds show a distinct tint of purple on the nape. The lower plumage is very uniform in all, young and old alike. It is shown beyond all doubt by sexed females in the British Museum collected by Mr. Wallace, and by birds shot by myself in Burmah, that the fully adult female has the cheeks and ear-coverts blue like the male, but generally intermingled with a little ferruginous until she becomes aged.

The Malayan Kingfisher is somewhat locally distributed. I found it abundant in the Pegu hills a few miles north of the town of Pegu and also in a patch of dense jungle a couple of miles north of Kyeikpadein. Lord Tweeddale received a specimen from Tonghoo. Mr. Davison states that it occurs sparingly throughout Tenasserim; and he and Mr. Hume make two species of the birds found in that Division, the richer-coloured bird being recorded from Bankasoon only and the greener and duller bird from elsewhere.

It has a wide range, being found in many parts of the peninsula of India from the north to the extreme south. It occurs in Cochin China, the Malay peninsula, the Andamans, Sumatra, Java, Borneo and some of the further islands.

This species is restricted to the dense forests where the ground is broken up by nullahs and ravines. I think it always darts on its prey from a perch and does not hover in the air. I have found numerous nests of this bird in July in Pegu. The eggs, four to six in number, are laid on the bare soil in a chamber at the end of a tunnel dug in the perpendicular face of a bank of a ravine among thick vegetation.

464. *ALCEDO EURYZONA*.

THE BROAD-BELTED KINGFISHER.

Alcedo euryzona, Temm. *Pl. Col.* livr. 86; Sharpe, *Mon. Alced.* p. 29, pl. 8; *Salvad. Ucc. Born.* p. 95; Tweed, *Ibis*, 1877, p. 297; Hume, *S. F.* viii. p. 49. *Alcedo nigricans*, Bl. *J. A. S. B.* xvi. p. 1180; Hume & Dav. *S. F.* vi. p. 81; Hume, *S. F.* viii. p. 86; Bingham, *S. F.* ix. p. 156.

Description.—*Male*. Forehead, crown and nape dull black barred with greenish blue; back and rump silvery blue; upper tail-coverts a brighter and deeper blue; tail black with a bluish tinge; lesser wing-coverts and scapulars dull black tinged near the tips with dull blue; median and greater wing-coverts dull black margined with bright blue; quills dark brown, edged partially with blue; lores ferruginous; cheeks and ear-coverts black, the feathers broadly terminated with dull blue; a broad streak on either side of the neck white, ending in pale orange; chin and throat white; breast dull blue, the white bases of the feathers appearing in places; sides of the breast dusky black; sides of the body white streaked with brown; abdomen, vent, under wing-coverts and under tail-coverts white (varying to buff according to Mr. Hume).

The *female* has the chin and throat white, and the upper plumage and head like the male; but the whole under plumage is a bright ferruginous.

A *young female* differs in having a good deal of ferruginous on the cheeks and ear-coverts.

Male: upper mandible black; lower mandible very dark brown, almost black, paler at base; iris deep brown; legs and feet vermilion. *Female*: upper mandible black; lower mandible pale red; iris very dark brown; legs and feet pale vermilion; claws pale orange. (Davison.)

The young bird has the lower mandible red and the tips of both mandibles white.

Length 8 inches, tail 1·6, wing 3·4, tarsus ·5, bill from gape 2·2. The female is of the same size.

I have examined two males from the Indian archipelago in the British Museum, and find them to be identical with a Tenasserim male both in coloration and size.

The Broad-belted Kingfisher occurs in Tenasserim from the extreme south to about the latitude of Moulmein; and Capt. Bingham observed it in the Thoungyeen valley. My men obtained one specimen at Malewoon.

It has been procured at Malacca, and in Sumatra, Java and Borneo.

This Kingfisher, according to Mr. Davison, occurs in streams which flow through deep forests, is shy, feeds entirely on fish, and is usually seen in pairs.

A. beryllina from Java is of the same type of plumage as the present species, but is very much smaller, the wing being 2·4 inches in length.

Genus CERYLE, *Boie*.

465. CERYLE GUTTATA.

THE HIMALAYAN SPOTTED KINGFISHER.

Alcedo guttatus, *Vigors*, *P. Z. S.* 1830, p. 22. *Ceryle guttata*, *Jerd. B. Ind.* i. p. 234; *Sharpe, Mon. Alced.* p. 57, pl. 18; *Hume, Nests and Eggs*, p. 110; *id. S. F.* ii. p. 470; *Wald. in Bl. B. Burm.* p. 71; *Inglis, S. F.* v. p. 19; *Hume & Dav. S. F.* vi. p. 85; *Hume, S. F.* viii. p. 86; *Bingham, S. F.* viii. p. 193, ix. p. 156.

Description.—*Male.* The whole upper plumage, crest, wings and tail black or dark brown barred with white; on the head the white assuming the shape of oval drops, and some of the crest-feathers being nearly pure white tipped with black; sides of the head black streaked with white; a broad band under the cheeks and ear-coverts, a large patch on the hind neck, chin and throat pure white; sides of the neck and a broad band across the breast barred black and white; breast, abdomen, vent and under tail-coverts white; sides of the body white barred with black; under wing-coverts white.

The *female* differs only in having the under wing-coverts buff-coloured.

Bill black; irides dark brown; legs brown-black. (*Jerdon.*)

Length about 16 inches, tail 4·8, wing 7·2, tarsus ·5, bill from gape 3·3.

The Himalayan Spotted Kingfisher was observed by Mr. Davison in the hill-streams north of Pahpoo in Tenasserim, and Capt. Bingham met with it in the Thoungyeen valley.

It occurs in Cachar, the Daffa hills in Assam, and along the whole Himalayan range up to Cashmeer. It will probably be found in the Indo-Burmese countries, as well as in Arrakan and Pegu.

Little seems to be known about this large Kingfisher. Dr. Jerdon states that it darts on its prey from a perch; and Mr. Thompson, as quoted by Mr. Hume, says that it breeds in the Himalayas from April to June, nesting, as is usual with birds of this family, in holes of river-banks.

466. CERYLE RUDIS.

THE PIED KINGFISHER.

Alcedo rudis, Linn. *Syst. Nat.* i. p. 181. *Ceryle rudis*, Jerd. *B. Ind.* i. p. 232; Sharpe, *Mon. Alced.* p. 61, pl. 19; Hume, *Nests and Eggs*, p. 109; *id.* *S. F.* iii. p. 52; Dresser, *B. Eur.* v. p. 125, pl.; Bl. B. *Burm.* p. 71; David et Oust. *Ois. Chine*, p. 77; Anders. *Yunnan Exped.* p. 580; Legge, *Birds Ceylon*, p. 288; Oates, *S. F.* v. p. 143; Hume & Dav. *S. F.* vi. p. 85; Hume, *S. F.* viii. p. 86; Bingham, *S. F.* ix. p. 157.

Description.—*Male.* Lores and a long supercilium white; forehead, crown and nape black, sparingly streaked with white; back, scapulars, wing-coverts, rump and upper tail-coverts black, edged with white; tail white at the base, then black and tipped with white; primaries black, with a broad band of white at base, and narrowly tipped with white; secondaries and tertiaries mixed black and white; the ear-coverts and feathers round the eye black; cheeks and whole lower plumage white; a broad band of black across the breast, followed by another narrow one, separated from the first by a narrow band of white; the lower throat and sides of the body spotted with black in some specimens, unspotted in others.

The *female* differs in having the broad black band across the breast interrupted in the middle, and in having the second black narrow band of the male entirely absent.

Bill black; mouth dusky; iris dark brown; eyelids pinkish; legs black; claws dark horn.

Length 11·7 inches, tail 3·3, wing 5·5, tarsus ·45, bill from gape 3. The female is of about the same size.

The Pied Kingfisher is found commonly over the whole of Arrakan and Pegu in the plains. In Tenasserim Mr. Davison did not observe it south of Amherst; but it may extend further south, for it is stated to have been procured in the Malay peninsula.

It is a bird of immense range; but it does not appear to be anywhere migratory. It is found in Siam, Cochin China and over a considerable portion of China, in the Indo-Burmese countries, the peninsula of India, Persia, Asia Minor, Southern Europe and the whole continent of Africa.

This common Kingfisher is mostly found in open country, where the banks of the streams and ponds are more or less free from thick jungle; and it appears to be less common in the vicinity of the sea than elsewhere. It hovers in the air, watching for fish, more habitually than any of the other Kingfishers. I have found its eggs in October and November; and in some streams its nest-holes are quite common. The eggs are usually five in number; and the tunnel leading to the egg-chamber is frequently very short, in some cases not more than a foot in length.

Genus PELARGOPSIS, *Gloger*.

467. PELARGOPSIS AMAUROPTERA.

THE BROWN-SHOULDERED STORK-BILLED KINGFISHER.

Halcyon amauroptera, *Pears. J. A. S. B.* x. p. 635; *Jerd. B. Ind.* i. p. 224.

Pelargopsis amauroptera, *Sharpe, Mon. Alced.* p. 97, pl. 30; *Bl. B. Burm.* p. 70; *Armstrong, S. F.* iv. p. 305; *Hume & Dav. S. F.* vi. p. 73; *Hume, S. F.* viii. p. 85.

Description.—*Male and female.* The whole head and neck, the entire under surface and the under wing-coverts deep cinnamon-buff, occasionally obsoletely barred with black on the neck; back, rump and the shorter upper tail-coverts bright silvery blue; the longer tail-coverts and the whole of the wings and tail dark cinnamon-brown. In the immature bird the wing-coverts are edged with fulvous.

Bill deep crimson; legs scarlet; irides brown. (*Jerdon*.)

Length about 14 inches, tail 4, wing 5·8, tarsus 6, bill from gape 3·7.

The Brown-shouldered Stork-billed Kingfisher occurs along the whole sea-coast line of British Burmah, coming inland only as far as the tidal waters penetrate. It appears to be not uncommon; but I have never had the opportunity of observing it.

It extends along the coast, north to Bengal and south to Junk Ceylon in the Malay peninsula.

Although this fine Kingfisher appears to be restricted to salt or brackish waters, yet it is occasionally found elsewhere; for Capt. Wardlaw Ramsay procured it at Yeytho, on the road leading from Rangoon to Prome, and about forty miles from the former town. Its habits are similar to those of the next species.

468. PELARGOPSIS BURMANICA.

THE BURMESE STORK-BILLED KINGFISHER.

Pelargopsis burmanica, *Sharpe, P. Z. S.* 1870, p. 67; *id. Mon. Alced.* p. 109, pl. 35; *Ball, S. F.* i. p. 57; *Hume, S. F.* ii. p. 165, iii. p. 50; *Bl. B. Burm.* p. 70; *Bingham, S. F.* v. p. 83; *Hume & Dav. S. F.* vi. p. 73; *Hume, S. F.* viii. p. 85; *Bingham, S. F.* ix. p. 154.

Description.—*Male.* Forehead, crown, nape, lores, cheeks and ear-coverts light brown; the whole lower plumage and under wing-coverts orange-buff, pale on the chin and throat, and with fine wavy cross bars on

the lower neck, breast and abdomen; the sides of the neck and a broad collar round the neck orange-buff; upper back, scapulars, tertiaries, wing-coverts and the longer upper tail-coverts greenish blue; lower back, rump and the shorter tail-coverts ultramarine-blue; inner webs of primaries and secondaries brown; the outer webs of the secondaries and the basal portion of the outer webs of the primaries greenish blue; tail blue, tinged with purple. In very old birds the wavy lines on the lower plumage disappear.

The *female* differs only in having the back and scapulars tinged with brown.

Bill dark red, brown at the tip; mouth dark salmon-red; iris dark brown; eyelids pinkish fleshy, the edges red; feet a paler red than the bill; claws horn.

Length 14·5 inches, tail 4·5, wing 6, tarsus ·7, bill from gape 3·75. The female is larger.

The Burmese Stork-billed Kingfisher is abundant over the whole of Pegu and Tenasserim, and probably also Arrakan, although its occurrence in this Division has not yet been noted. Dr. Armstrong did not observe it in the Irrawaddy Delta, but I received skins from Yandoon, and it probably occurs over the whole of the low plains composing the Delta.

It is recorded from the Andaman Islands and from Siam. Dr. Tiraud states that it is found in Cochin China, and it extends down the Malay peninsula as far at least as Malacca.

This Kingfisher, one of the commonest and best known in Burmah, is found alike in the hills and plains, and is especially abundant in the nullahs of the former. It has a very loud and striking note, and it feeds not only on fish, but also on reptiles. In the rains it may frequently be seen busy catching fish in the inundated plains in the south of Pegu, seating itself on the telegraph-wires which traverse the fields, and darting into the water with great impetuosity. I found the eggs in a hole of a river-bank near Pegu in April; they were four in number. Captain Bingham found the eggs in the Thoungyeen valley in February, March and April in the holes of banks, and on one occasion he identified as the nest of this bird a structure made of grass placed in a bamboo bush; but there is little doubt, I think, that he was deceived as to the ownership of the nest.

There are many races of this Kingfisher:—*P. guriel*, of the Indian peninsula, with a dark brown cap; *P. malaccensis*, from Malacca, somewhat similar to *P. guriel*, but much smaller; *P. fraseri*, from Malacca and some of the islands, with a very indistinct cap; *P. intermedia*, from the Nicobar Islands; and others from more remote regions.

Subfamily DACELONINÆ.

Genus CEYX, *Lacép.*

469. CEYX TRIDACTYLA.

THE THREE-TOED KINGFISHER.

Alcedo tridactyla, *Pall. Spic. Zool.* vi. p. 10, t. ii. fig. 1. *Ceyx tridactyla*, *Jerd. B. Ind.* i. p. 229; *Sharpe, Mon. Alced.* p. 119, pl. 40; *Hume, S. F.* iii. p. 51; *Bl. B. Burm.* p. 71; *Legge, Birds Ceylon*, p. 303; *Hume & Dav. S. F.* vi. p. 80; *Hume, S. F.* viii. p. 86; *Bingham, S. F.* viii. p. 193, ix. p. 155; *Parker, S. F.* ix. p. 478; *Oates, S. F.* x. 187.

Description.—*Male and female.* The lores and the feathers immediately round the base of upper mandible black, tinged with blue; forehead, crown and nape chestnut, the portion over the eye and ear-coverts glossed with lilac; chin and throat white; cheeks, ear-coverts and the whole lower plumage buffy yellow, tinged with rufous across the breast; a spot behind the ear-coverts bluish black; below this another patch of white; back black, the lower feathers tipped with shining blue; scapulars and lesser wing-coverts black; all the feathers of the latter, and the exterior feathers of the former, tipped with blue; greater coverts and quills black; the secondaries and tertiaries edged with blue; edge of wing chestnut; lower back, rump and upper tail-coverts chestnut, glossed with lilac; tail chestnut, tipped narrowly with brown; under wing-coverts pale rufous.

Bill bright red; mouth paler red; eyelids, where visible, plumbeous; iris dark brown; legs and claws red.

Length 5·4 inches, tail 1·1, wing 2·2, tarsus ·3, bill from gape 1·55. The female is of the same size.

The Three-toed Kingfisher, a lovely and diminutive species, occurs in suitable localities throughout a considerable portion of Burmah. I noticed it to be common in the evergreen forests of the Pegu hills, and also in some thick jungle between Kyeikpadein and the Pegu river on some low hills. Mr. Blyth records it from Arrakan. Mr. Davison states that it is not uncommon in Tenasserim south of Yea, and Capt. Bingham observed it in the Thoungyeen valley.

It occurs over the greater part of India and Ceylon, the Malay peninsula, Sumatra and Java, and it also extends to Cochin China.

This small Kingfisher is fond of rocky streams in dense forests, where water collects in small pools; it is also found in dry nullahs, but not so commonly. Seated on a rock or a branch, it allows a very near approach,

and then darts away with lightning speed, uttering a low sibilant note. Mr. Parker found the eggs in Ceylon in April, July and August; and he states that, unlike those of other Kingfishers, they are pointed at the ends. The birds under observation were breeding in dense forest far from water.

The allied *C. rufidorsa*, from the Malayan peninsula and islands, is still more brilliantly coloured, and wants the blackish-blue patches on the sides of the head.

Genus HALCYON, *Swains.*

470. HALCYON COROMANDA.

THE RUDDY KINGFISHER.

Alcedo coromanda, *Lath. Ind. Orn.* i. p. 252. *Halcyon coromandelianus* (*Scop.*), *Jerd. B. Ind.* i. p. 227. *Callialcyon coromanda*, *Salvad. Ucc. Born.* p. 101; *David et Oust. Ois. Chine*, p. 76. *Halcyon coromanda*, *Sharpe, Mon. Alced.* p. 155, pl. 57; *Hume, S. F.* ii. pp. 169, 494; *Bl. B. Burm.* p. 70; *Wardlaw Ramsay, Ibis*, 1877, p. 456; *Hume & Dav. S. F.* vi. p. 75; *Hume, S. F.* viii. p. 85.

Description.—*Male and female.* The whole upper plumage rich rufous, suffused with shining lilac, glossy on all the parts except the forehead, crown and lores; the inner webs of the tail and wings duller rufous; lower back and rump glossy bluish white; lower plumage rich ferruginous, paler on the throat and darkest on the breast.

Bill red, blackish at the base; iris brown; legs and claws red.

Length 10 inches, tail 2·7, wing 4·2, tarsus ·6, bill from gape 2·5. The female is of about the same size.

The Ruddy Kingfisher is one of the rarest in British Burmah, being found only occasionally in a few places. I shot one specimen near the town of Pegu, and I once observed it near Shwaygheen, and the late Colonel Lloyd appears to have sent it to the Marquis of Tweeddale from the neighbourhood of Tonghoo; it may, however, be more common in the maritime portions of the Division. Mr. Davison found it throughout Tenasserim, but chiefly near the sea, and my men brought me one specimen from Malewoon.

This species is found in India along the base of the Himalayas, in Nipal and Sikhim, and also in Lower Bengal. It occurs in the Andaman Islands, the Malay peninsula, Sumatra, Java, Borneo, the Philippines, Celebes, Formosa and Japan; and Dr. Tiraud gives it from Cochin China.

471. HALCYON SMYRNEUS.

THE WHITE-BREASTED KINGFISHER.

Alcedo smyrneus, Linn. *Syst. Nat.* i. p. 181. *Alcedo fusca*, Bodd. *Tabl. Pl. Enl.* p. 54. *Halcyon fuscus*, Jerd. *B. Ind.* i. p. 224. *Halcyon smyrneus*, Sharpe, *Mon. Alced.* p. 161, pl. 59; Hume, *Nests and Eggs*, p. 105; Dresser, *Birds Eur.* v. p. 133, pl.; Bl. *B. Burm.* p. 70; Armstrong, *S. F.* iv. p. 306; Oates, *S. F.* v. p. 143; Hume & Dav. *S. F.* vi. p. 74; Anders. *Yunnan Exped.* p. 579; Legge, *Birds Ceylon*, p. 298; Hume, *S. F.* viii. p. 85; Bingham, *S. F.* ix. p. 154; Kelham, *Ibis*, 1881, p. 380. *Entomobia smyrneus*, David et Oust. *Ois. Chine*, p. 76.

Description.—*Male and female.* Chin, throat and centre of the breast white; remainder of the head and lower plumage, the whole neck and the upper back rich chocolate-brown; centre of the back and scapulars greenish blue; lower back, rump and upper tail-coverts ultramarine-blue; tail blue, the centre feathers duller; lesser wing-coverts chestnut; median coverts black; greater coverts black, tipped with blue; primaries with a patch of white on the inner webs, increasing in extent till it occupies nearly the whole web on the last primary; the outer webs correspondingly bluish white, then blue for a short distance, and finally the tips of the feathers black; secondaries and tertiaries blue, broadly edged with brown on the inner web.

Bill dark red, with the margins brownish; mouth bright red; iris brown; eyelids plumbeous, the edges pinkish brown; legs coral-red; claws horny.

Length 11·3 inches, tail 3·7, wing 4·7, tarsus ·6, bill from gape 2·6. The female is of the same size.

The White-breasted Kingfisher is abundant over the whole Province, except, perhaps, on the higher hills and mountains.

It has a considerable range, being found throughout the Indo-Burmese countries, the whole of India, with Ceylon, and further on in Southern Asia as far as Palestine and the Red Sea. It occurs in China, Siam, Cochin China and the Malay peninsula.

This Kingfisher has habits peculiar to itself, being in great measure independent of water and living mostly on small reptiles and large insects. It is found principally in well-wooded parts of the country, flying from tree to tree and seizing its prey on the ground. It has a loud and easily recognizable call. The eggs, usually five in number, are laid in a hole in the bank of a ravine in forests and not in the banks of rivers. The breeding-season lasts from April to June.

472. HALCYON PILEATA.

THE BLACK-CAPPED KINGFISHER.

Alcedo pileata, Bodd. *Tabl. Pl. Enl.* p. 41. *Alcedo atricapilla*, Gm. *Syst. Nat.* i. p. 453. *Halcyon atricapillus*, Jerd. *B. Ind.* i. p. 226. *Halcyon pileata*, Sharpe, *Mon. Alced.* p. 169, pl. 62; *Hume, S. F.* iii. p. 51; *Bl. B. Burm.* p. 70; *Armstrong, S. F.* iv. p. 306; *Legge, Birds Ceylon*, p. 301; *Hume & Dav. S. F.* vi. p. 74; *Hume, S. F.* viii. p. 85; *Bingham, S. F.* viii. p. 193, ix. p. 154; *Kelham, Ibis*, 1881, p. 380; *Oates, S. F.* x. p. 187. *Entomobia pileata*, *Salvad. Ucc. Born.* p. 102; *David et Oust. Ois. Chine*, p. 75.

Description.—*Male.* Forehead, crown, nape, ear-coverts, cheeks and moustache black, the lores and forehead slightly mottled with whitish; chin, throat and neck white tinged with fulvous, forming a very broad collar; back, rump, scapulars and upper tail-coverts glossy violet-purple, shading into black near the white collar; tail rich violet-purple, all but the central pair of feathers bordered with black on the outer webs and tipped slightly with fulvous-white; wing-coverts black; winglet and primary-coverts blue; the shafts of the first six primaries black, of the others black with the central portion white; primaries white at base, black at the end, the white tinged with blue on the outer webs and speckled with blue near the white parts of the shafts; secondaries and tertiaries blue on the outer webs; the inner webs blue next the shaft, black elsewhere, and all tipped black; breast pale fulvous, with brown specks arranged in crescentic forms; centre of abdomen white; remainder of lower plumage rich fulvous.

The *female* resembles the male, but has the breast sometimes streaked with black. This, however, may only denote immaturity.

Bill deep red; mouth pale red; iris dark brown; eyelids pinkish plumbeous, covered with white feathers except on the edges, where they are black; legs dark red, brownish in front of the tarsus; claws dark horn.

Length 12 inches, tail 3·6, wing 5, tarsus ·7, bill from gape 2·8. The female is of the same size.

The Black-capped Kingfisher is found in all the maritime portions of British Burmah and also at a considerable distance up the larger rivers. In the Irrawaddy I procured it at Palow, not many miles below Thayetmyo; and in the Sittang I observed it to be numerous in the interminable creeks and swamps on the right bank of the river below Shwaygheen. At both these localities the water is always sweet. As a rule, however, this bird is found more commonly in salt or brackish water. It appears to feed entirely on fish, and to plunge after them from its resting-place.

This bird is found over the greater part of India, in Ceylon, the Andaman Islands, China, Siam, Cochin China, the Philippine Islands, the Malay peninsula, Sumatra and Borneo.

473. HALCYON CONCRETA.

THE SUMATRAN KINGFISHER.

Dacelo concreta, Temm. Pl. Col. 346. *Halcyon concreta*, Sharpe, Mon. Alced. p. 219, pl. 83; *Hume & Dav. S. F.* vi. p. 76; *Hume, S. F.* viii. p. 86. *Caridagrus concretus*, Salvad. Ucc. Born. p. 102.

Description.—*Male.* Forehead, crown and nape dull green; the lores and a broad band through the eyes and ear-coverts, completely encircling the head, black; a broad moustachial band, an inch and a half long, blue, tipped with black near the end; a narrow supercilium from the nostrils to the end of the ear-coverts, the space between the black and blue bands of the head, a broad collar round the upper back, the sides of the neck and the whole lower plumage orange-buff, paling on the vent and under tail-coverts; a patch on either side the breast blackish; the back, immediately next the orange-buff, black; wing-coverts, secondaries and tail blue; quills dark brown edged with blue, the tertiaries very broadly so; the first primary edged narrowly with orange-buff; back, rump and shorter upper tail-coverts smalt-blue; longer tail-coverts deeper blue.

The *female*, according to Mr. Hume, resembles the male in general appearance, differing only in having the interscapular region, coverts (except the primary greater ones), outer portions of secondaries, visible portions of tertiaries and scapulars all green, with the feathers of the coverts and scapulars marked with a buffy-white subterminal spot.

The *young* differ very slightly from the adults.

Legs, feet and claws chrome-yellow, sometimes with a dingy greenish tinge; irides deep brown; lower mandible, gape and a narrower or broader stripe on the upper mandible parallel to commissure from base to point bright yellow to orange chrome-yellow; eyelids of the same colour; rest of upper mandible dull black. (*Davison.*)

Length 9 inches, tail 2·8, wing 4·5, tarsus ·7, bill from gape 2·7. The female appears to be larger.

The Sumatran Kingfisher was procured by Mr. Davison in the extreme south of Tenasserim at Bankasoon and Malewoon; and at this latter place my men obtained two specimens.

It extends down the Malay peninsula, and occurs in Sumatra and Borneo.

This bird, according to Mr. Davison, frequents dense forests and is not found near water. It feeds on lizards and woodlice.

474. HALCYON CHLORIS.

THE WHITE-COLLARED KINGFISHER.

Alcedo chloris, *Bodd. Tabl. Pl. Enl.* p. 49. **Alcedo collaris**, *Scop. Del. Fl. et Faun. Insub.* ii. p. 90. **Todiramphus collaris**, *Jerd. B. Ind.* i. p. 228. **Halcyon chloris**, *Sharpe, Mon. Alced.* p. 229, pl. 87; *Hume, S. F.* i. p. 451, ii. p. 170; *Armstrong, S. F.* iv. p. 306; *Hume & Dav. S. F.* vi. p. 78; *Hume, S. F.* vii. p. 169, viii. p. 86; *Kelham, Ibis*, 1881, p. 381; *Oates, S. F.* x. p. 187. **Sauropatis chloris**, *Salvad. Ucc. Born.* p. 103; *Bl. B. Burm.* p. 71; *Wald. Trans. Zool. Soc.* ix. p. 155.

Description.—*Male and female.* Forehead, crown, nape, a band under the eye and ear-coverts, upper back and scapulars green tinged with blue; ear-coverts and a narrow band encircling the nape black; lower back, rump, wing-coverts and upper tail-coverts bright blue; tail deeper blue; quills dark brown, broadly edged with deep blue; lores black; a band above these extending to the eye white; the whole lower plumage, under wing-coverts and a broad collar round the neck pure white.

Legs and feet plumbeous in front; behind and the soles in some bluish, in some pinkish grey; the upper mandible, tip and edge of lower mandible greenish black; rest of lower mandible pinkish white; irides deep brown. (*Davison.*)

Length 9·5 inches, tail 2·9, wing 4, tarsus ·6, bill from gape 2·2. The female is of the same size.

The White-collared Kingfisher appears to be found generally along the sea-coast of British Burmah, penetrating inland for some distance at times; for I once shot a specimen near the town of Pegu, fully sixty miles from the sea, but where the river is tidal and the water consequently brackish.

It extends up the coast to the Bengal Sunderbuns, but it has not been recorded from any other part of the peninsula of India except the neighbourhood of Bombay. It has also been procured in the Red Sea, and it probably will be found at various points of the intervening coast. It is abundant in the Andaman Islands, and ranges down the Malay peninsula to Sumatra, Java, Borneo and the further islands as far as New Guinea and the Solomon group. It is also recorded from Siam and Cochin China.

This Kingfisher is a bird of tidal waters, and lives principally on crabs and fish left stranded on mud-banks at low water. According to Bernstein, the nest is generally a plain hole in the earth protected by a stone or bush, and the eggs are laid on a few dry leaves and pieces of moss. Mr. Davison found this bird breeding in a deserted ants' nest in a garden in Tenasserim, and he states that he noticed this Kingfisher in the town of Mergui seated on the house-tops.

An allied species is *H. occipitalis* from the Nicobar Islands. It differs in having a broad buff band surrounding the crown of the head from the forehead to the nape.

There are many other members of this genus, but none likely to occur in Burmah.

Genus *CARCINEUTES*, *Cab. et Hein.*

475. *CARCINEUTES PULCHELLUS.*

THE BANDED KINGFISHER.

Dacelo pulchella, *Horsf. Trans. Linn. Soc.* xiii. p. 175. *Carcineutes pulchellus*, *Sharpe, Mon. Alced.* p. 251, pl. 96; *Bl. & Wald. B. Burm.* p. 70; *Hume & Dav. S. F.* vi. p. 79; *Hume, S. F.* viii. p. 86; *Bingham, S. F.* viii. p. 193, ix. p. 154. *Carcineutes amabilis*, *Hume, S. F.* i. p. 474; *Sharpe, S. F.* ii. p. 484; *Hume, S. F.* iii. p. 51.

Description.—*Male.* Forehead, lores, cheeks and ear-coverts, produced backwards to meet on the nape and forming a broad collar, chestnut; crown and nape brilliant smalt-blue; the blue is somewhat broken in places, owing to the white of the feathers showing through; back, scapulars, tertiaries, median and greater wing-coverts black, barred with white and terminated with blue; lesser wing-coverts black, tipped with blue; rump black, tipped with blue, the white bars interrupted; upper tail-coverts like the back; central tail-feathers black, barred with blue and with some white marks on the inner webs at the end of the blue bars; the other rectrices barred with blue on the outer webs and with white on the inner; primaries black; secondaries black, with white spots on both webs, which become bars on the tertiaries; chin, throat and upper breast white; lower breast tinged with buff; sides of the body buff; abdomen, vent and under tail-coverts white.

The *female* has the whole upper plumage, tail, wing-coverts, scapulars, tertiaries and the sides of the head and neck pale chestnut barred with black; primaries black; secondaries black, with chestnut spots on both webs; entire lower plumage white; a few black broken bars on the sides of the breast; in immature birds these bars are more marked.

Bill bright red; mouth red; eyelids and orbital skin pale salmon-red; iris yellowish white; legs greenish brown; claws horn-colour.

Length 9·2 inches, tail 3·5, wing 3·5, tarsus ·6, bill from gape 2. The female is quite as large.

Some birds have no chestnut collar round the neck; and the male which I procured on the Pegu hills, and which Mr. Hume named *C. amabilis*,

was of this description. The want of the collar is probably due to immaturity.

The Banded Kingfisher is found both in Pegu and Tenasserim. In the former Division I procured it on the eastern spurs of the Pegu hills between Thayetmyo and Tonghoo, and Capt. Wardlaw Ramsay on the Karin hills to the east of Tonghoo. In Tenasserim it was observed by Mr. Davison from Amherst down to the southernmost point of the Division, and by Capt. Bingham in the Thoungyeen valley.

It ranges down the Malay peninsula and occurs in Sumatra and Java.

The specimens I procured on the Pegu hills were shot in a rocky stream in a dense evergreen forest. Mr. Davison, who had more opportunities of observing it, states, however, that this species is not usually found near streams, but in dense forests, feeding on lizards, woodlice, &c.

Family BUCEROTIDÆ.

Genus DICHOCEROS, *Gloger*.

476. DICHOCEROS BICORNIS.

THE GREAT PIED HORNBILL.

Buceros bicornis, *Linn. Syst. Nat.* i. p. 153. **Buceros cavatus**, *Shaw, Gen. Zool.* viii. p. 18; *Tick. Ibis*, 1864, p. 176. **Buceros homrai**, *Hodgs. J. A. S. B.* i. p. 251. **Homraius bicornis**, *Jerd. B. Ind.* i. p. 242. **Dichoceros homrai**, *Hume, Nests and Eggs*, p. 111; *id. S. F.* iii. p. 55. **Dichoceros bicornis**, *id. Nests and Eggs*, p. 112; *Bl. & Wald. B. Burm.* p. 68; *Elliot, Mon. Bucer.* pl. vi.; *Wardlaw Ramsay, Ibis*, 1877, p. 454. **Dichoceros cavatus**, *Bourdillon & Hume, S. F.* iv. p. 384; *Inglis, S. F.* v. p. 20; *Hume & Dav. S. F.* vi. p. 98; *Oates, S. F.* vii. p. 45; *Hume, S. F.* viii. p. 86; *Bingham, S. F.* viii. p. 461, ix. p. 158.

Description.—*Male and female.* A broad band round the base of the bill extending as far as the ends of the ear-coverts black; a broader band round the neck white, tinged with fulvous; the lower rump, upper tail-coverts, under tail-coverts and the lower abdomen and vent white; tail white, with a broad band of black across it; the remainder of the plumage black, more or less glossy; the quills all broadly tipped with white and with a white band at their bases, except on the first two primaries; the primary-coverts tipped with yellowish white; the greater coverts broadly tipped with white.

Male. Bill and casque yellow, tinged with orange at the tip and in the middle; the base of the casque, a triangular patch on each side of the anterior end of the casque and the junction of the casque and bill black; iris deep red; eyelids black; legs plumbeous; claws dark horn-colour.

Female. Lower mandible whitish, the base black; upper mandible and casque yellowish orange, turning red at the base and at the tip of the casque; base of the upper mandible near the eye and orbital skin black; iris bluish white; eyelids orange-brown; legs plumbeous; claws horny.

Length 51 inches, tail 18·5, wing 20·5, tarsus 2·8, bill from gape 10·3. The female is smaller: length 46 inches, wing 19·5, tail 18·5, bill from gape 9·5. The casque of this species is of very large size, rather flat at top, coming to two points in front and considerably broader than the bill.

The Great Pied Hornbill is found abundantly in all the dense virgin forests of British Burmah, both in the plains and hills.

To the north it extends through the Indo-Burmese countries and the hill-tracts of Eastern Bengal to the Himalayas, and it is found in a considerable portion of Southern India. To the south it ranges down the Malay peninsula to Sumatra; and Dr. Tiraud states that he met with it in Cochin China.

This enormous Hornbill, the largest of the family that is found in Burmah, occurs in flocks of from six to twenty individuals in most parts of the densely wooded portions of the country. Occasionally it may be seen well out on an open plain, but on such occasions its object is to secure the fruit growing on some isolated tree; it quickly retires to the forest if disturbed. The noise made by its wings when flying is very loud, and may be heard a long distance. The food of this Hornbill appears to be exclusively fruit; and I have not observed it feeding on the ground, as many of the other Hornbills do. The breeding-season commences in March or probably in February; but I myself have taken the eggs in March only. A large natural hollow in a tree is selected at a considerable height from the ground, and the female having taken up her position within, is gradually immured by the male, who plasters up the opening with a mixture of dung, earth, bits of bark and leaves, till nothing is left open but a small slit through which the female can pass her bill in order to receive the food brought to her most assiduously by the male. The female remains shut up all the time she is incubating, and probably for some time after the young are hatched. The eggs are usually two in number, white, but much stained with yellow at times.

Genus RHINOPLAX, *Gloger*.

477. RHINOPLAX VIGIL.

THE SOLID-BILLED HORNBILL.

Buceros vigil, *J. R. Forst. Ind. Zool.* p. 40. **Buceros scutatus**, *Bodd. Tabl. Pl. Enl.* p. 55. **Buceros galeatus**, *Gm. Syst. Nat.* i. p. 360. **Rhinoplax scutatus**, *Salvad. Ucc. Born.* p. 88. **Rhinoplax vigil**, *Elliot, Mon. Bucer.* pl. x.; *Hume & Dav. S. F.* vi. p. 115; *Hume, S. F.* viii. p. 86.

Description.—*Male.* Forehead, crown and nape with a short occipital crest dark brown; ear-coverts and scattered feathers on the sides of the head brown edged with rufous; remainder of the head, all the neck and a considerable portion of the back bare and red; the upper plumage, wings and breast brown; the longer upper tail-coverts white; primaries and most of the secondaries tipped with white; abdomen, sides of the body, vent and under tail-coverts white; central tail-feathers grey, the others white, the whole with a broad black band near their ends.

The *female* does not appear to differ from the male except in having a shorter tail.

The whole of the sides, the top of the casque and the sides of both upper and lower mandible as far as the casque extends are deep crimson; the truncated front of the casque and the whole of the upper mandible beyond the casque are a bright orange-yellow; irides dark litharge-red; legs and feet dirty orange-brown; skin of eyelids the same dirty red as the other bare portions. (*Davison.*)

Length of male to end of ordinary tail-feathers 43·5 inches; tail to end of ordinary tail-feathers 18; wing 19·25; tarsus 3; bill from gape straight to point 6·75; length of casque along its upper ridge 3; height of upper mandible and casque 3·5. (*Davison.*)

This remarkable form differs from all others in having a short rounded casque quite solid throughout instead of hollow, and in having the central pair of tail-feathers produced a considerable distance, twelve to eighteen inches, beyond the next pair. It has the head, neck and a considerable portion of the back naked and of a red colour, and altogether it is, as Mr. Hume aptly calls it, a perfect nightmare of a bird.

The Solid-billed Hornbill has been observed in the extreme south of Tenasserim at Bankasoon, where Mr. Davison obtained one specimen and my men another.

It extends down the Malay peninsula, and occurs in Sumatra and Borneo.

Mr. Davison is probably the only naturalist who has observed this bird in a state of nature. He says:—"The birds are excessively shy and rare,

and they confine themselves almost exclusively to the evergreen forests, where they frequent the very highest trees. Their note is very peculiar and can be heard at the distance of a mile or more. It commences with a series of whoops, uttered at intervals of about half a minute for five or ten minutes; then the interval between each whoop grows shorter and shorter, till the whoop, whoop, whoop is repeated very quickly ten or a dozen times—the bird ending up by going off into a harsh quacking laugh. There is then a pause of ten minutes or a quarter of an hour or more, and then it recommences.” He adds that the specimen shot by him had eaten fruit.

Genus ANTHRACOCEROS, *Reich.*

478. ANTHRACOCEROS ALBIROSTRIS*.

THE SMALL PIED HORNBILL.

Buceros albirostris, *Shaw, Gen. Zool.* viii. p. 13; *Tickell, Ibis*, 1864, p. 179. *Hydrocissa albirostris*, *Jerd. B. Ind.* i. p. 247; *Salvad. Ucc. Born.* p. 82; *Bl. B. Burm.* p. 68; *Wardlaw Ramsay, Ibis*, 1877, p. 455; *Inglis, S. F.* v. p. 20; *Bingham, S. F.* v. p. 84; *Anders. Yunnan Exped.* p. 577; *Hume & Dav. S. F.* vi. p. 100; *Oates, S. F.* vii. p. 46; *Hume, S. F.* viii. p. 86; *Bingham, S. F.* viii. p. 462, ix. p. 158. *Anthracoceros malabaricus* (*Gm.*), *Elliot, Mon. Bucer.* pl. xiii. (part.).

Description.—*Male and female.* Abdomen, sides of the body, vent and under tail-coverts white; the remainder of the plumage black, more or less glossy; the four outer pairs of tail-feathers very broadly tipped with white; all the secondaries and all the primaries except the first two tipped with white; edge of the wing white.

Bill yellowish white; the base of the casque and an oblong patch on the fore part dark brown; base of both mandibles black, extending to the fore part of the naked skin of the face; orbital skin bluish white; mouth dark ochraceous brown; edges of eyelids brown; iris red to brown; legs dusky green; claws horny. The female has a patch of reddish brown in front of the black of the lower mandible, and there is considerably more brown on both mandibles and on the casque than in the male.

Length 28 inches, tail 11, wing 11, tarsus 2, bill from gape 5. The female is smaller: wing 10, tail 10, bill from gape 4·5. In the very young bird there is no casque.

The casque of this Hornbill is rather cylindrical and reaches over about

* As Mr. Hume has shown, Gmelin's name of *malabaricus* applies rather to *A. affinis* than to the present species. In any case I think it preferable to use Shaw's name.

two thirds the length of the bill ; in old birds it is nearly as high as the bill itself.

Allied species from neighbouring regions are :—*A. affinis* from Northern India, similar in plumage to the present, but constantly larger ; *A. fraterculus* from Cochin China, also similar in plumage, but said to have the casque different in colour and shape. *A. coronatus* from S. India and *A. convexus* from the Malay peninsula are also similar in coloration, but differ notably in having the outer tail-feathers entirely white ; the former is larger in size and the latter smaller. *A. malayanus* has the whole lower plumage black and a broad supercilium white.

The Small Pied Hornbill is found abundantly over the whole of British Burmah. I know of no part of the province where it is not to be met with all the year round. It occurs as often singly and in pairs as in small flocks, and frequents every description of jungle, both dense forest and outlying groups of trees. Fruit constitutes its chief food, but it also eats reptiles and has been known to catch fish. I have frequently got the eggs in March ; they are laid in a hole of a tree at a great height from the ground, and are usually three in number, white, much stained with yellow as incubation proceeds. The female is plastered up in her nest, as is usual with all those species of Hornbills the breeding-habits of which are known.

Genus RHYTIDOCEROS, *Reich.*

479. RHYTIDOCEROS SUBRUFICOLLIS.

BLYTH'S WREATHED HORNBILL.

Buceros subruficollis, *Bl. J. A. S. B.* xii. p. 177. **Buceros pusaran**, *Tick. Ibis*, 1864, p. 180 (part.). **Rhyticeros subruficollis**, *Hume, Nests and Eggs*, p. 115 ; *Wardlaw Ramsay, Ibis*, 1877, p. 455 ; *Hume & Dav. S. F.* vi. p. 112 ; *Hume, S. F.* viii. p. 86 ; *Bingham, S. F.* viii. p. 463, ix. p. 159. **Aceros subruficollis**, *Bl. & Wald. B. Burm.* p. 69 ; *Oates, S. F.* vii. p. 46. **Buceros subruficollis**, *Tweed. Ibis*, 1877, p. 295. **Rhytidoceros subruficollis**, *Elliot, Mon. Bucer.* pl. xxxvi.

Description.—*Male.* Sides of the crown, cheeks, ear-coverts and forehead pale golden fulvous ; a broad line passing from the base of the bill over the head, widening out to the full width of the neck and reaching down to the back, rich dark golden brown ; feathers at the base of the upper mandible the same rich colour ; sides of the neck, chin, throat and upper breast white tinged with pale shining fulvous ; tail white, with a trace of black at the base ; remainder of the plumage glossy black, with

green and bronze reflections, especially strong on the back and scapulars ; the first and second primaries tipped slightly with white ; eyelashes black.

The base of the casque and basal third of bill brownish red ; the corrugations of the casque black in the valleys and yellowish on the ridges ; the terminal two thirds of the bill pale yellow ; gular skin bright gamboge-yellow ; eyelids pinkish flesh-colour, the edges red ; iris bright pink ; legs and claws dark brown.

The *female* has the tail white as in the male ; with this exception the whole plumage is black. On the breast there is generally, but not always, a pale fulvous crescentic patch ; this is probably a sign of immaturity.

Base of the upper mandible and base of casque reddish brown ; base of lower mandible black ; remainder of bill yellowish white ; iris orange-red ; eyelids deep reddish brown ; orbital skin purplish brown ; gular skin smalt-blue, changing to yellow at the junction with the feathered parts all round ; legs deep brownish black ; claws dark horn.

Length 34 inches, tail 11, wing 16·5, tarsus 2·2, bill from gape 7. The female is considerably smaller, the wing being about 16 and the total length about 30 inches, bill from gape 6.

The casque in this and the next species is small, extending over about half the bill, and is transversely ribbed.

The number of corrugations on the casque varies considerably, sometimes being only two, sometimes as many as five. Young birds at first have the casque smooth.

Blyth's Wreathed Hornbill is found locally throughout British Burmah. Colonel Tickell speaks of its being found in the inland forests of Arrakan ; but I do not know of any one else who has met with it in that Division. In Pegu it is spread over the eastern portion of the Division on both sides the Sittang river from Tonghoo down to the town of Sittang, and I observed it to be most numerous near the village of Khayuay. Mr. Davison found it abundant in Tenasserim from Moulmein to Tavoy, and almost absent in the country south of this latter town. Capt. Bingham notes it from the Thoungyeen valley. It is not yet known to occur outside the limits of British Burmah.

It is by no means clear that this bird occurs in Arrakan. Colonel Tickell published an account of *Buceros pusaran* in 'The Ibis' for 1864, and Mr. Elliot unhesitatingly identified this bird with *R. subruficollis*. I cannot find a single word in Col. Tickell's account to show that he referred to *R. subruficollis* in contradistinction to *R. undulatus*. In his 'Illustrations of Indian Ornithology' Colonel Tickell figures a Hornbill very beautifully, and gives an enlarged drawing of the head, under the name of *Buceros pusaran*, and both the figure and the head represent *R. subruficollis* ; but Col. Tickell in his manuscript states that he cannot make out how *R. undulatus* and *R. subruficollis* differ ; and it is plain that he con-

founded the two species. It is therefore quite as probable that he procured the former and not the latter in Arrakan.

This Hornbill is almost invariably seen in large flocks, flying low, and, when on trees, not showing the same amount of watchfulness as the other species. At Myitkyo, where I had ample opportunities of observing them, I saw them flying in hundreds over the canal-lock and its neighbourhood every morning during the earlier months of the year. After crossing the Sittang river and the canal they would settle on the Pegu plain, and spend the whole morning hopping about the ground. On shooting them on their return to the forests on the east of the Sittang, I found their pouches full of earth and snail-shells: the former was probably required for their nests, and the latter no doubt they fed largely on. I got an egg in March in the forests west of Payagalay, on the Tonghoo road; it was placed in a natural hollow at an immense height in a wood-oil tree, and the female was built in with clay.

480. RHYTIDOCEROS UNDULATUS.

THE MALAYAN WREATHED HORNBILL.

Buceros undulatus, *Shaw, Gen. Zool.* viii. p. 26. **Buceros pusaran** (*Raffl.*), *Tick. Ibis*, 1864, p. 180 (part.). **Rhyticeros obscurus** (*Gm.*), *Hume, Nests and Eggs*, p. 115. **Rhytidoceros obscurus** (*Gm.*), *Salvad. Ucc. Born.* p. 85. **Aceros plicatus** (? *Lath.*), *Bl. B. Burm.* p. 69. **Rhytidoceros undulatus**, *Elliot, Mon. Bucer.* pl. xxxv.; *Tweedd. Ibis*, 1877, p. 292. **Rhyticeros undulatus**, *Hume & Dav. S. F.* vi. p. 111; *Hume, S. F.* viii. p. 86; *Bingham, S. F.* viii. pp. 194, 463, ix. p. 159.

Description.—*Male and female.* Similar in coloration respectively to the male and female of *R. subruficollis*, but differing in being larger, in having the wing differently shaped, the secondaries and tertiaries being nearly as long as the primaries, and in having several ribs or ridges on the sides of both mandibles near the gape.

The bill and other parts of the bird are similar in colour to those of *R. subruficollis*, except that in both sexes the gular pouch has a blackish band drawn across its base, more or less broken in the centre.

Length 40 inches, tail 12·5, wing 19, tarsus 2·5, bill from gape 8. The female is much smaller: length 35 inches, tail 11, wing 17, tarsus 2·2, bill from gape 6·5.

The Malayan Wreathed Hornbill appears to occur in but few parts of British Burmah except in Tenasserim. In this Division Mr. Davison states that it is common from Amherst southwards; and Capt. Bingham obtained it in the Thoungyeen valley. I have not met with it in any part of Pegu;

but Capt. Wardlaw Ramsay procured a young bird at Tonghoo. Mr. Blyth gives it from Arrakan, and Mr. Theobald noticed it at Sandoway.

To the north it has been met with in Chittagong, Cachar, the hill-tracts of Eastern Bengal and in Assam.

On the south it ranges down the Malay peninsula, and it occurs in Sumatra, Java and Borneo; and Dr. Tiraud states that it is found in Cochinchina.

The habits of this Hornbill do not present any peculiarities. Mr. Theobald in Arrakan and Capt. Bingham in Tenasserim found the eggs in March.

Other species of this genus are *R. plicatus*, from New Guinea and the further islands, and *R. narcondami*, from the Nicobar Islands.

Genus ANORRHINUS, *Reich.*

481. ANORRHINUS COMATUS.

THE LONG-CRESTED HORNBILL.

Buceros comatus, *Raffl. Trans. Linn. Soc.* xiii. p. 339. *Anorrhinus comatus*, *Elliot, Mon. Bucer.* pl. xxxix. *Berenicornis comatus*, *Hume & Dav. S. F.* vi. p. 106; *Hume, S. F.* viii. p. 86.

Description.—*Male.* The head, a long and ample crest covering the whole crown and nape, the neck, breast, upper abdomen, tail and the tips of all the primaries and secondaries except the first two primaries white; remainder of the plumage black, with a green gloss on the wings and scapulars.

The *female* has the forehead, crown, nape, crest, tail and the tips of the primaries and secondaries white; the feathers of the head with black shafts; remainder of the plumage black, with a green gloss on the wings and scapulars.

The legs, feet and claws are black, apparently at all ages; the irides in the adults are wax-yellow, but oil-yellow in the younger birds. In the old adults the facial skin and the base of the lower mandible are a deep but rather dull blue, in somewhat younger birds it is a paler blue, in the next stage pink tinged with blue, and in the youngest bird pink. In the oldest adult the bill is perfectly black, except the ridge of the casque and a slight mottling of a pale dull green at the bases of both mandibles. In the youngest birds almost the whole of both mandibles is of this dull horny green-colour, only on the upper mandible there is a large patch of

horny black on either side just in front of the casque, and behind this the sides of the upper mandible and casque are a duskier horny green than elsewhere. (*Davison*.)

Length about 40 inches, tail 18, wing 15, tarsus 2·4, bill from gape to tip 6·5. The female is rather smaller.

The Hornbills of this genus have a small smooth casque indistinctly separated from the upper mandible, over which it extends for rather more than half its length. A peculiar feature of the present species is its enormous and peculiar shaped crest.

The Long-crested Hornbill occurs in the extreme south of Tenasserim, where my men procured it at Bankasoon. Mr. Davison also obtained it at this village, and further north at the base of Nwalabo mountain.

It extends down the Malay peninsula, and occurs in Sumatra; and Dr. Tiraud records it from Cochin China.

This species, according to Mr. Davison, keeps about the lower trees and undergrowth and is very shy. It feeds not only on fruit, but also on lizards and small birds, and it is constantly seen on the ground.

482. ANORRHINUS GALERITUS.

THE BUSHY-CRESTED HORNBILL.

Buceros galeritus, *Temm. Pl. Col.* 520. *Anorrhinus galeritus*, *Salvad. Ucc. Born.* p. 79; *Tweedd. Ibis*, 1877, p. 292; *Hume & Dav. S. F.* vi. p. 109; *Hume, S. F.* viii. p. 86; *Elliot, Mon. Bucer.* pl. xlii.

Description *.—*Male and female*. “The forehead, entire top, back and sides of the head and neck, crest and entire upper parts dark brown, with a strong metallic green reflection; ear-coverts rather darker, and wanting this reflection; feathered portion of throat, breast and abdomen a dull chocolate-brown, somewhat paler in the middle of the abdomen; the feathers somewhat glossy, but almost entirely wanting the marked green reflections of the upper surface; tibial plumes similar but darker, and exhibiting more of these reflections; vent paler and drabby; lower tail-coverts a somewhat pale drab-brown, fringed paler. . . . Tail with about the basal three-fifths greyish drab; terminal two-fifths black or nearly so, glossed with green as the rest of the upper parts. The quills have a barely perceptible pale brownish margin to the outer webs.

“In the adult male the legs, feet and claws are black; the irides lake-red; the gular and orbital skin pale blue, darker at the anterior angle of

* My men did not procure this species in Tenasserim, and I therefore quote Messrs. Hume and Davison's description of the bird.

the eye ; angle of the gonys and base of throat and eyelids mottled black and white."

In the female the gular and orbital skin is probably black. Mr. Elliot states that the skin on the throat is yellow.

Length about 35 inches, tail 13, wing 14, tarsus 2, bill from gape 5·2. The female is very little smaller. The crest in both sexes is very thick and long, measuring as much as five inches in length.

The Bushy-crested Hornbill occurs in the south of Tenasserim from Bankasoon up to Nwalabo mountain.

It extends down the Malay peninsula, and is found in the islands of Sumatra and Borneo.

According to Mr. Davison this species is not uncommon in Southern Tenasserim, but is very wary and difficult to approach. It is strictly arboreal and probably feeds on nothing but fruit.

483. ANORRHINUS TICKELLI.

TICKELL'S HORNBILL.

Buceros tickelli, *Bl. J. A. S. B.* xxiv. pp. 266, 285, xxviii. p. 412. **Toccos tickelli**, *Tick. Ibis*, 1864, p. 173, pl. iii. **Anorrhinus tickelli**, *Bl. B. Burm.* p. 69; *Elliot, Mon. Bucer.* pl. xliii.; *Hume, S. F.* viii. p. 86. **Ocyrceros tickelli**, *Hume & Dav. S. F.* vi. p. 103; *Hume, S. F.* vii. p. 499; *Bingham, S. F.* viii. p. 462, ix. p. 158.

Description.—*Male.* A patch of feathers behind each nostril pale ferruginous; forehead, crown and nape dark brown, each feather edged with reddish brown, and each feather of the nape with a mesial grey shaft-line; the whole upper plumage and wing-coverts dark brown; the scapulars, rump and upper tail-coverts and wing-coverts edged somewhat paler, and the other parts somewhat darker; tail dark brown, very narrowly edged with greyish white on the outer webs, and all the feathers broadly tipped with white; primaries black, all but the first and last two with a patch of buff on the outer webs; secondaries black, edged on the outer webs with pale buff; tertiaries brown, edged narrowly all round with paler brown; primary-coverts black, most of them mottled with white near their tips; the primary quills tipped white; cheeks, ear-coverts, sides of neck and the whole lower plumage bright ferruginous; under wing-coverts smoky buff.

The *female* differs in no respect from the male.

An *immature male* has the sides of the head, chin, throat and breast with white shaft-stripes; but differs in no other respect from the adult.

Male: bill yellow, with a patch of red on either side the base of the lower mandible; orbital skin pale blue; iris brown; legs dark brownish

black or dark plumbeous; claws horn-colour. *Young male*: bill yellow, basal half greenish; orbital skin straw-yellow; iris grey; legs greyish green; claws horn-colour. *Adult female*: bill yellowish, irregularly blotched with greenish; orbits dull brownish yellow, with a livid patch at the hind corner of each eye; iris light brown; legs dull livid plumbeous; claws horn-colour. *Another female, apparently immature*: skin round eye brownish; ridge of upper mandible yellowish horny, remainder of the bill dirty brown; legs dark brown; iris brown; claws black.

Male: length 29 inches, tail 12·5, wing 13, tarsus 1·9, bill from gape 4·6 to 5·2. *Female*: length 27 inches, tail 11·5, wing 12, tarsus 1·8, bill from gape 4.

The above descriptions are taken from a beautiful series of birds in Captain Bingham's collection. Mr. Hume states that the female differs from the male in having the lower plumage earthy brown, and in having the amount of white in the tippings of the wings and tail reduced in extent; but two females in Capt. Bingham's collection are absolutely like the males in plumage except that one, of which it is noted that it was caught on the nest, has the lower surface a dull ferruginous brown. This is due, I think, to the peculiar habits of the nesting female, who never leaves the nest the whole time incubation is proceeding. The feathers, under these circumstances, must necessarily become dull coloured by abrasion, but otherwise there is no difference in colour between her and the male.

Tickell's Hornbill is remarkably local, being, so far as is at present known, entirely confined to the tract of country in Tenasserim lying to the east of Moulmein. Messrs. Davison and Darling and Capt. Bingham met with it at various places the names of which are carefully recorded in their writings; but the area may be described as extending from the head of the Thoungyeen river to its junction with the Salween, and right across the valley from ridge to ridge.

This Hornbill, according to all accounts, is one of the most wary of its tribe except at the breeding-season, when it appears in some measure to put aside its fears. In the many instances in which Capt. Bingham found the nests they were situated quite low down in holes of trees, and the male birds were easily approached. The breeding-season is in February and March; the eggs vary in number from two to five and are white.

These Hornbills are apparently arboreal and frugivorous, never descending to the ground.

A. austeni, from the Cachar hills, described by Dr. Jerdon from a specimen procured by Col. Godwin-Austen, appears to differ from *A. tickelli* in being larger and in having the throat, sides of the neck and the bases of the primaries white.

I have not been able to examine the type, which is said to be in the British Museum.

Genus ACEROS, *Hodgs.*

484. ACEROS NIPALENSIS.

THE RUFOUS-NECKED HORNBILL.

Buceros nepalensis, *Hodgs. Calc. Glean. Sc. i. p. 249; id. P. Z. S. 1832, p. 15; Tick. Ibis, 1864, p. 182. Aceros nipalensis*, *Jerd. B. Ind. i. p. 250; Bl. B. Burm. p. 69; Gammie, S. F. iii. p. 209; Elliot, Mon. Bucer. pl. xlv.; Hume & Dav. S. F. vi. p. 110; Hume, S. F. viii. p. 86.*

Description.—*Male.* The whole head, neck and breast bright rufous; abdomen, vent and under tail-coverts deep chestnut; the feathers of the neck long and covering the upper back; back, rump, scapulars, wings and upper tail-coverts glossy black; the tips of the second to the fifth primaries white; the basal two thirds of the tail black, the terminal third white.

The *female* is black throughout, the wings and upper plumage glossed with green; tips of the tail-feathers and some of the primaries white, as in the male.

The *female* has the naked space on the throat vermilion, heart-shaped, bounded by a narrow grey-black band confined to the base of the lower mandible and side of neck; around the eye blue, under eyelid pink; bill pale waxy yellow, with two well-marked black bars at base of upper mandible; the lower has a pale soiled appearance for about $1\frac{1}{2}$ inch (*Godwin-Austen*). Naked skin round the eyes and at base of bill rich velvety light blue; the naked skin of the throat bright scarlet; bill yellow with the grooved striæ chestnut (*Jerdon*).

Length 45 to 48 inches, tail 18, wing 18, tarsus 2·5, bill from gape 8. The female is smaller: length 42 inches, tail 17, wing 16, bill from gape 7·5.

The Rufous-necked Hornbill was observed, and a specimen procured, in Tenasserim by Col. Tickell on a ridge near Mooleyit mountain; and Mr. Davison saw the bird, but failed to secure specimens, at or near the same locality.

This Hornbill has been met with in Cachar and the hill-tracts of Eastern Bengal, and it ranges along the Himalayas to Nipal.

Mr. Gammie found the nest with a solitary egg in Sikhim in May, situated in the hollow of a tree at a great height from the ground.

Other Hornbills from adjoining countries not already mentioned are:—*Buceros rhinoceros*, from Malacca, with the point of the casque curled upwards; *Cranorrhinus corrugatus*, from the Malay peninsula, with the terminal half of the tail chestnut; *Tockus griseus* and *T. gingalensis*, from India, both of a brownish colour and with no casque on the bill; and *Lophoceros birostris*, also from India, with a sharp-pointed and projecting casque.

Suborder COCCYGES HETERODACTYLÆ.

Family TROGONIDÆ.

Genus HARPACTES, *Swains.*

485. HARPACTES ERYTHROCEPHALUS.

THE RED-HEADED TROGON.

Trogon erythrocephalus, *Gould, P. Z. S.* 1834, p. 25; *id. Mon. Trog.* 1st edit. pl. 33. **Trogon hodgsoni**, *Gould, t. c.* 1st edit. pl. 34. **Harpactes hodgsoni**, *Gould, t. c.* 2nd edit. pl. 42; *Jerd. B. Ind.* i. p. 202; *Hume, Nests and Eggs*, p. 99; *Bl. B. Burm.* p. 82; *Hume, S. F.* iii. p. 47; *Hume & Dav. S. F.* vi. p. 66. **Harpactes erythrocephalus**, *Gould, Mon. Trog.* 2nd edit. pl. 43; *Hume & Dav. S. F.* vi. p. 498; *Hume, S. F.* viii. p. 85; *Oates, S. F.* viii. p. 164; *Bingham, S. F.* ix. p. 152; *Hume & Inglis, S. F.* ix. p. 246.

Description.—*Male.* The whole head, neck and lower plumage deep crimson, duskier on the head and throat; back, scapulars, lesser wing-coverts, rump and upper tail-coverts chestnut-brown; greater and median coverts and tertiaries black, finely vermiculated with white; primaries black, the outer edges white near the base; secondaries black, vermiculated with white on the outer webs only; central tail-feathers chestnut, tipped with black; the next pair chestnut, the tip and the outer half of the inner webs black; the next pair black, the basal half of the outer web chestnut; the others are black, broadly tipped with white.

The *female* has the whole neck, breast and upper plumage ferruginous brown, and the lower plumage is less brilliant than in the male. The vermiculations on the wing are buff instead of brown.

Bill bluish; the culmen and tip of both mandibles and the anterior half of the margins of upper mandible black; gape and orbital skin purplish blue; iris dull red; mouth flesh-colour; legs pinkish; claws dark at base, flesh-colour at tip.

Length 13·5 inches, tail 8, wing 5·8, tarsus ·6, bill from gape 1·1. The female is a little smaller.

The Trogon of this type from Sumatra and Borneo is said to differ from the Indian race. I have not been able to verify this statement. Should

it differ, however, it cannot bear either of Gould's names, for both are referable to the Indian and Burmese bird.

The Red-headed Trogon is found abundantly over the whole of Pegu and Arrakan where there are tracts of heavy forest, and is more common on the hills than in the plains. In Tenasserim Mr. Davison did not meet with it south of Mooleyit mountain; and Capt. Bingham remarks that it is by no means common in the Thoungyeen valley. Capt. Wardlaw Ramsay obtained it in Karennee at an elevation of 4000 feet.

It extends north through the Indo-Burmese countries and the hill-tracts of Eastern Bengal, and it is found in the Himalayas as far as Nipal.

This species, or a closely allied race, is said to occur in Borneo and Sumatra, but there is no record of its occurrence in the Malay peninsula.

This Trogon affects thick forests, and, although solitary in its habits, it is so common in some of the hill-forests that a dozen or more may frequently be seen together. It feeds entirely on insects, swooping on them in the air. I found the eggs in May near Pegu; they were three in number, a very pale buff in colour, and laid on the bare wood in a hollow of a decayed tree. Capt. Bingham found the eggs in Tenasserim in March.

486. HARPACTES ORESKIOS.

THE YELLOW-BREASTED TROGON.

Trogon oreskios, *Temm. Pl. Col.* 181; *Gould, Mon. Trog.* 1st edit. pl. 36. **Harpactes gouldii**, *Swains. Class. Birds*, ii. p. 337. **Harpactes oreskios**, *Wald. P. Z. S.* 1866, p. 538; *Gould, Mon. Trog.* 2nd edit. pl. 46; *Hume, S. F.* iii. p. 47; *Bingham, S. F.* v. pp. 50, 82; *Davison, S. F.* v. p. 454; *Hume & Dav. S. F.* vi. p. 66; *Hume, S. F.* viii. p. 85. **Orescius gouldii**, *Salvad. Ucc. Born.* p. 31. **Harpactes orescius**, *Bl. B. Burm.* p. 82; *Oates, S. F.* x. p. 186.

Description.—*Male.* Forehead, crown, nape, sides of the head and of the neck yellowish green; chin, throat and upper breast dull yellow; lower breast, abdomen and sides brilliant orange-yellow; vent and under tail-coverts yellow; back, scapulars, rump and upper tail-coverts chestnut; central tail-feathers chestnut, tipped with black; the next two pairs black; the outer three pairs black at base, white at tip; lesser wing-coverts chestnut-brown; greater and median coverts and tertiaries black, closely barred with white; primaries black, the outer webs of the second to the eighth edged with white; secondaries black, barred with white on the outer webs only.

The *female* has the head and nape olive-brown; the remainder of the

upper plumage reddish brown ; tail as in the male ; wings as in the male, excepting that the bars on the coverts, secondaries and tertiaries are buff ; the chin is yellowish ; the throat and breast greyish brown ; the remainder of the lower parts is deep yellow, without the fiery orange tint of the male.

Bill purplish blue, the culmen and tip blackish ; orbital skin bright smalt-blue ; legs plumbeous blue ; claws dark horn ; mouth dusky flesh-colour ; iris dark brown.

Length 12 inches, tail 7·3, wing 5, tarsus ·6, bill from gape ·85. The female is of the same size.

The Yellow-breasted Trogon is found over the greater part of British Burmah. Mr. Blyth gives it from Arrakan. In Pegu I observed it on the Pegu hills near the frontier, and more commonly in some of the forests between the hills and the Sittang river as far down as Pegu ; and Capt. Wardlaw Ramsay got it on the Karin hills. Mr. Davison says it is generally distributed and common throughout Tenasserim, being more frequent between Moulmein and Tavoy ; and, according to Capt. Bingham, it is extremely common in the Thoungyeen valley.

Out of Burmah it probably occurs in portions of the Malay peninsula, for it is met with in Sumatra, Java and perhaps in Borneo. Mr. Blyth gives it from Siam and Cambodia ; but Dr. Tiraud did not find it in Cochin China.

This Trogon is not confined to evergreen or dense forest like the preceding species, but is met with also in bamboo- and spare tree-jungle. It has similar habits to the Red-headed Trogon. Both Capt. Bingham and Mr. Davison found numerous nests of this bird in Tenasserim in February. The eggs, two or three in number, are placed at the bottom of a hole in a branch of a tree ; they are of a pale buff colour.

487. **HARPACTES DUVAUCELII.**

DUVAUCEL'S TROGON.

Trogon duvaucelii, *Temm. Pl. Col.* 291 ; *Gould, Mon. Trog.* 1st edit. pl. 32. **Pyro-trogon duvaucelii**, *Salvad. Ucc. Born.* p. 29. **Harpactes duvaucelii**, *Gould, Mon. Trog.* 2nd edit. pl. 40 ; *Hume & Dav. S. F.* vi. p. 63 ; *Hume, S. F.* viii. p. 85.

Description.—*Male.* The whole head and neck black ; back and scapulars ruddy buff ; rump, upper tail-coverts, breast and all the lower plumage bright crimson, becoming paler on the vent and under tail-coverts ; central tail-feathers bright bay, sometimes tipped black ; the next two pairs black ;

the others black at base and broadly white at tip; wings blackish, all the coverts, the tertiaries, the outer webs of the secondaries and the outer web of the first primary barred with white; the outer webs of the other primaries narrowly edged with white.

The *female* has the head brown, tinged with rusty on the throat, and the lower plumage a paler crimson; the tail is the same as in the male; the bars on the wings are buff instead of white; the rump and upper tail-coverts are like the back, but washed with crimson.

Legs and feet pale smalt-blue, smalt-blue, dark purplish blue; claws horny; irides deep brown; bare space over eye deep to bright smalt-blue; gape to within half an inch of tip of bill a rich cobalt, shading to pale cobalt at tip of lower mandible; tip and ridge of culmen and a narrow streak on each side horny black; or, gape and sides of bill cobalt-blue; culmen, tips of upper and lower mandibles, and edges of both for about one third of their length, measuring from the tip, black. (*Davison*.)

Length 10 inches, tail 5·4, wing 4·2, tarsus ·4, bill from gape ·9. The female is of much the same size.

A closely allied race, *H. orrophæus*, Cabanis, occurs in the south of the Malay peninsula. It has the rump and upper tail-coverts not crimson, but concolorous with the back.

Duvaucel's Trogon occurs from the extreme south of Tenasserim up to Nwalabo mountain, and appears to be not uncommon.

It extends down the Malay peninsula and is met with in Sumatra and Borneo.

Mr. Davison says:—"In habits it resembles the other members of the genus, inhabiting the most shady depths of the evergreen forests, sitting quietly on some low branch, from which it occasionally swoops off to seize an insect, and at intervals uttering its soft note, which much resembles that of the other Trogons, but is much softer."

Suborder COCCYGES ZYGODACTYLÆ.

Family CUCULIDÆ.

Subfamily CUCULINÆ.

Genus CUCULUS, *Linn.*

488. CUCULUS CANORUS.

THE EUROPEAN CUCKOO.

Cuculus canorus, *Linn. Syst. Nat.* i. p. 168; *Jerd. B. Ind.* i. p. 322; *Hume, Nests and Eggs*, p. 133; *Wald. Trans. Zool. Soc.* viii. p. 115; *Hume, S. F.* iii. p. 78; *Bl. B. Burm.* p. 79; *Hume, S. F.* iv. p. 288; *Wardlaw Ramsay, Ibis*, 1877, p. 458; *David et Oust. Ois. Chine*, p. 65; *Legge, Birds Ceylon*, p. 221; *Anders. Yunnan Exped.* p. 586; *Dresser, Birds Eur.* v. p. 199, pl.; *Hume & Dav. S. F.* vi. p. 156; *Hume, S. F.* viii. p. 88; *Scully, S. F.* viii. p. 253; *Oates, S. F.* x. p. 192.

Description.—*Male and female.* The whole upper plumage ashy blue; the wings brown, barred with white on the inner webs; tail ashy brown, tipped with white and spotted with white along the shafts; sides of the head, chin, throat and upper breast clear pale ashy; remainder of lower plumage pale fulvous, narrowly barred with black; under tail-coverts with hardly any bars or marks.

The *young bird* has the whole upper plumage, wings and tail barred with ferruginous and the feathers tipped white, and the whole lower plumage is white barred with brown.

Bill dusky horn, yellowish at the base and edges; gape orange-yellow; iris and legs yellow. The young have the iris brown; edges of the eyelids yellow; eyelids plumbeous; mouth deep orange; upper mandible dark brown; lower mandible pale green; legs yellow; claws yellowish brown.

Length 13 inches, tail 7, wing 8, tarsus .8, bill from gape 1.2. The female is rather smaller.

The European Cuckoo is of smaller size in Burmah, but does not otherwise differ from the European bird.

This well-known Cuckoo is tolerably abundant from August to February round about the towns of Pegu and Kyeikpadein and probably throughout the Pegu Division, for I procured a specimen at Prome in November

Mr. Blyth records it from Moulmein in Tenasserim, and Capt. Wardlaw Ramsay found it abundant on the tableland of Karennee.

It occurs, according to season, over the greater portion of Asia, Europe and Africa.

The European Cuckoo appears to be merely a winter visitor to Burmah; but a few may breed in this country, for on the 8th of August I once shot a bird which was so young that it was in all probability born in Burmah or close by in one of the adjacent countries. I have never heard its familiar call in Burmah; but Capt. Wardlaw Ramsay states that he heard the note quite commonly in Karennee. It is well known that this Cuckoo lays its eggs in the nests of other birds; and if it breeds in Burmah its egg will probably be found in the nest of some Timeliine bird.

489. CUCULUS MICROPTERUS.

THE INDIAN CUCKOO.

Cuculus micropterus, Gould, P. Z. S. 1837, p. 137; Jerd. B. Ind. i. p. 326. no. 203; Swinhoe, P. Z. S. 1871, p. 395; Bl. & Wald. B. Burm. p. 79; Hume, S. F. iii. p. 79; David et Oust. Ois. Chine, p. 64; Hume & Dav. S. F. vi. p. 156; Legge, Birds Ceylon, p. 228; Hume, S. F. viii. p. 88; Oates, S. F. x. p. 193. *Cuculus affinis*, A. Hay, Bl. J. A. S. B. xv. p. 18; Bl. B. Burm. p. 79, Wardlaw Ramsay, Tweedd. Mem. p. 671; Hume, S. F. viii. p. 88. *Cuculus striatus* (Drap.), apud Jerd. B. Ind. i. p. 328. no. 204.

Description.—*Male and female.* Forehead, crown, nape, sides of head and neck and the cheeks ashy, pale on the sides of the forehead; chin, throat and fore neck pale ashy; upper plumage and wings brown; the inner webs of the quills barred with white; the upper tail-coverts tinged with ashy; tail ashy brown, tipped with whitish and with a broad sub-terminal black band; all the feathers with white spots along the shaft, turning to bars on the outermost ones; the edges of the central feathers marked with spots of rufous; breast, abdomen, vent and sides of the body white, with numerous broad black cross bars; under tail-coverts white, with a few indistinct bars.

Young birds are dark brown; the feathers of the upper plumage broadly tipped with rufous; the head barred with rufous-white; the lower plumage pale fulvous, with interrupted broad black bars; tail much as in the adult, but the spots and marks rufous.

Iris rich brown; eyelids greenish plumbeous, the edges deep yellow; gape yellow; a small portion of the upper mandible under the nostrils and the greater portion of the lower mandible dull green; remainder of the bill dark horny black; legs yellow; claws dark horn.

Length 13 inches, tail 6·4 to 6·8, wing 7·5 to 8·5, tarsus ·85, bill from gape 1·3.

This Cuckoo, when adult, bears a close general resemblance to the European Cuckoo; but may be recognized by its plain brown upper plumage and the broad subterminal tail-bar; the bars of the lower plumage are also broader and less frequent. There is little doubt that *C. affinis* was described from a large specimen of *C. micropterus*.

The Indian Cuckoo is generally distributed over Pegu both on the hills and plains, and is tolerably common. In Tenasserim it appears to be rare, for Mr. Davison did not meet with it often. I can find no record of its occurrence in Arrakan, but it is doubtless abundant in that Division.

It occurs in the Indo-Burmese countries and the greater part of the peninsula of India with Ceylon. It is also found in China and Cochin China; Lieut. Kelham met with it at Perak and Singapore, and it is recorded from Malacca. It is probably spread over a considerable portion of Central Asia and possibly Siberia, but it is difficult to trace its distribution without an examination of specimens.

The Indian Cuckoo is, I think, a permanent resident in Burmah, for its remarkable call may be heard during the greater part of the year; and in August I once shot a specimen which was obviously a nestling barely able to fly. This bird is very noisy and utters its call of four notes, which resemble the word *bho-kutha-kho*, from the top of a high tree almost throughout the entire day and late in the evening during the dry weather. It probably lays its eggs, like the other large parasitic Cuckoos, in the nests of the Timeline birds.

490. CUCULUS STRIATUS.

THE ASIATIC CUCKOO.

Cuculus striatus, *Drap. Dict. Class. d'Hist. Nat.* iv. p. 570; *Swinhoe*, *P. Z. S.* 1871, p. 395; *Hume*, *S. F.* ii. p. 190; *id. Nests and Eggs*, p. 134; *Bl. B. Burm.* p. 79; *David et Oust. Ois. Chine*, p. 65; *Hume & Dav. S. F.* vi. p. 156; *Hume*, *S. F.* viii. p. 88; *Scully*, *S. F.* viii. p. 255; *Hume*, *S. F.* ix. p. 315 (note); *Oates*, *S. F.* x. p. 193. *Cuculus himalayanus*, *Vigors*, *P. Z. S.* 1831, p. 172; *Jerd. B. Ind.* i. p. 323; *Seeböhm*, *Ibis*, 1878, p. 326.

Description.—The whole upper plumage dark bluish ashy, browner on the wings; the inner webs of the quills barred with white; tail dark ashy brown, with large white shaft-spots, which turn to bars on the outer feathers, and with a subterminal dark bar; sides of the head like the crown; chin and throat pale ashy; breast ashy, barred with rufous and

brown ; remainder of lower plumage pale buff, barred with black ; the bars on the under tail-coverts nearly obsolete.

* In another stage the whole upper plumage, wings and tail are barred with black and deep rufous.

Feet, iris and gape bright yellow ; the upper mandible and the tip of the lower mandible horny green ; the rest of the lower mandible yellowish horny. (*Davison*.)

Length 12 inches, tail 6, wing 6·8, tarsus ·7, bill from gape 1·1. The female appears to be slightly smaller.

I have described above the only bird I procured in Pegu. It was shot in October, and agrees well with other birds from India and Siberia, except that the Pegu bird has a good deal of rufous on the breast. This species may always be distinguished from *C. micropterus* by the colour of its upper plumage, which is a clear bluish ashy, whereas in *C. micropterus* the upper plumage is brown with no bluish tinge. *C. striatus*, as a rule, also has a smaller bill ; but this is not a reliable character. From *C. canorus* it may be always separated by the subterminal dark bar on the tail.

The Asiatic Cuckoo is somewhat rare in Pegu, for I procured only one specimen in that Division, and I never heard its note. Mr. Davison states that it is apparently not rare in Tenasserim. Both to Pegu and Tenasserim it is probably only a winter visitor.

It occurs, according to season, over the greater portion of Asia, extending, according to Mr. Blyth, even to North Australia. Mr. Seeböhm procured it in Siberia, and his specimens are identical with Indian examples.

This Cuckoo has a very peculiar note, which appears to resemble the cry of the Hoopoe, being a guttural and hollow-sounding *hoo*. It lays in the Himalayas during June, and deposits its eggs very frequently in the nest of *Trochalopteron lineatum*.

The Cuckoos of South-eastern Asia have received a vast number of names, and it would require many months' labour and the examination of all the specimens contained in the European museums to evolve order from this confused mass of synonyms.

C. hyperythrus is a very distinct and beautiful species, which inhabits the Philippines and is also said to occur in China. The whole upper plumage, chin and cheeks in the adult are dark ashy, almost black, and the whole breast and abdomen are a deep rufous unstreaked and unbarred.

491. CUCULUS SONNERATII.

THE BANDED BAY CUCKOO.

Cuculus sonneratii, *Lath. Ind. Orn.* i. p. 215; *Jerd. B. Ind.* i. p. 325; *Wald. Trans. Zool. Soc.* viii. p. 55; *Bl. B. Burm.* p. 80; *Anders. Yunnan Exped.* p. 587; *Hume & Dav. S. F.* vi. p. 156; *Legge, Birds Ceylon*, p. 233; *Hume, S. F.* viii. p. 88; *Vidal, S. F.* ix. p. 54.

Description.—"Above greenish dusky, numerous cross-barred with rufous (which colour, indeed, may be said to predominate), except on the coverts of the primaries; quills dusky rufous on the edge of the outer web, pale internally; tail rufous, with a broad dusky bar near the end; the outer webs nearly dusky and the tip white, and the inner webs with narrow bars; the whole underparts, from the throat, white, very faintly tinged with fulvous on the flanks and marked with numerous narrow dusky cross bars; sides of head and neck also white, similarly barred; but the ear-coverts are coloured like the back, and frontal feathers are white at the base, showing conspicuously just over the bill.

"The young are more closely barred than adults, with pale rufescent on a blackish ground, and the breast is white banded with dusky; and aged individuals have the back and wings very faintly barred, the tail with the central feathers nearly all black, the edges scalloped with rufous and the outer feathers with dusky." (*Jerdon*.)

Irides brown; legs greenish grey; bill dusky; orbits grey. (*Vidal*.)

Length 9·5 inches, tail 4·5, wing 4·8, tarsus ·7, bill from gape 1·1.

As I have never procured this species in Burmah, and specimens are somewhat rare in English collections, I have preferred to give Dr. Jerdon's careful description.

The Banded Bay Cuckoo was obtained at Thayetmyo by Capt. Wardlaw Ramsay, and it is recorded from Tenasserim by Mr. Blyth. It is apparently rare in Burmah.

It extends through the Indo-Burmese countries, and is found over a great part of the peninsula of India with Ceylon.

Nothing is known regarding its nidification; but, like other true Cuckoos, it probably lays in the nests of other birds.

C. pravatus from Malayana is similar, but constantly smaller, the wing seldom exceeding 4·4 inches in length. Mr. Blyth states (*l. c.*) that *C. poliocephalus* can hardly fail to occur in Burmah; it has not, however, been yet recorded from this country, and I consequently do not enter it in my work. It is of an ashy colour above; the chin and throat are pale ashy, and the remainder of the lower plumage is white barred with dusky; and the wing is about 5·5 inches in length.

Genus *HIEROCOCCYX*, *Müller*.492. *HIEROCOCCYX SPARVERIOIDES*.

THE LARGE HAWK-CUCKOO.

Cuculus sparverioides, *Vigors*, *P. Z. S.* 1831, p. 173; *David et Oust. Ois. Chine*, p. 63. *Hierococcyx sparverioides*, *Jerd. B. Ind.* i. p. 331; *Hume, Nests and Eggs*, p. 135; *Bl. B. Burm.* p. 79; *Hume, S. F.* iii. p. 80; *Armstrong, S. F.* iv. p. 311; *Hume & Dav. S. F.* vi. p. 157; *Hume, S. F.* viii. p. 89; *Scully, S. F.* viii. p. 256. *Cuculus strenuus*, *Gould, Birds Asia*, pt. viii.

Description.—*Male and female.* Chin, forehead, crown, nape, sides of the head and neck and hind neck deep ashy; back, scapulars, wing-coverts and tertiaries brown; primaries and secondaries brown, banded with white on the inner webs; rump and upper tail-coverts ashy brown, the latter cross-barred darker and tipped paler; tail grey, with four broad cross bars of dark brown, contiguous to each of which is a narrow pale rufous bar; another subterminal rufous bar about an inch broad, and each feather with a pale rufous tip; throat white, more or less streaked with ashy; breast ferruginous, with pale ashy shaft-stripes; abdomen, sides of the body and under wing-coverts white barred with brown; vent and under tail-coverts pure white.

The *young bird* has the forehead and crown ashy; the nape and hind neck rufous streaked with brown; the whole remaining upper plumage brown barred with rufous; wings barred on both webs with rufous; tail much as in the adult; chin ashy; throat and breast pale buff, boldly streaked with brown; abdomen very narrowly and interruptedly barred with brown. As the bird gets older, the bars below become more defined and the rufous above disappears.

Gape and edges of the eyelids yellow; legs deep yellow; claws pale yellow; upper mandible dark brown, lower chiefly greenish; iris yellow.

Length 16 inches, tail 9, wing 9, tarsus 1, bill from gape 1.4. The female is smaller.

The Large Hawk-Cuckoo is found over the whole of Pegu and probably the whole of Arrakan. Mr. Davison met with it in Tenasserim as far south as Amherst, and Capt. Bingham observed it in the Thoungyeen valley. Capt. Wardlaw Ramsay procured it in Karennee at 4000 feet elevation.

It extends through the Indo-Burmese countries and is spread over a considerable portion of India. It is found in China, ranging in the summer as far as Amurland, and it has been recorded in the south from Malacca.

This fine Cuckoo appears to be a resident species in Burmah, for I am

under the impression that I have shot it at all periods of the year. It has a loud melodious call, which it utters from the summit of a tall tree. According to Mr. Hodgson this bird lays its eggs in the nests of other birds; but according to another observer it makes its own nest. Mr. Hodgson's statement is probably the correct one.

The Cuckoos of this genus are barely separable from *Cuculus* in structure; but they are remarkable for having portions of the lower plumage streaked, giving them the appearance of Hawks.

H. nisoides, Blyth, founded on a single specimen in the British Museum from Nipal, is like *H. sparveriioides*, but conspicuously smaller, the wing being only 7·5 inches in length.

493. *HIEROCOCCYX NISICOLOR.*

HODGSON'S HAWK-CUCKOO.

Hierococcyx nisicolor, *Hodgs.*, *Bl. J. A. S. B.* xii. p. 943; *Jerd. B. Ind.* i. p. 330; *Hume, S. F.* v. pp. 96, 347; *Hume & Dav. S. F.* vi. p. 157; *Hume, S. F.* viii. p. 88; *Oates, S. F.* x. p. 193.

Description.—*Male and female.* The whole upper plumage, coverts and wings deep ashy, the rump and upper tail-coverts tipped rather paler; the inner webs of the primaries and secondaries barred with white; tail ashy brown, tipped with ferruginous, with a broad subterminal black band and five narrower bars, two of which are generally concealed by the coverts; the narrower black bars are bordered below by pale rufous; chin, sides of the head and neck deep ashy; lores and base of the lower mandible whitish; throat and fore neck pale rufous-white streaked with grey; breast, abdomen and sides of the body bright rufous, the centres of the feathers ashy, giving a striped appearance; vent and under tail-coverts white.

Legs, feet, claws and eyelids bright yellow; gape greenish yellow; lower mandible and region of nostrils pale green; upper mandible horny black; irides orange-red. (*Davison.*)

Length 11·5 inches, tail 6·1, wing 6·8, tarsus ·8, bill from gape 1·2. The female is of the same size.

Hodgson's Hawk-Cuckoo occurs but sparingly in Burmah. I procured one specimen near Kyeikpadein in November and another near Tonghoo, and Mr. Davison obtained one near Thatone in Tenasserim. I am not aware of any other instance of its being met with in Burmah.

It was first described from Nipal, and it is also recorded from Malacca.

Nothing is known regarding its habits.

494. *HIEROCOCCYX NANUS*.

HUME'S HAWK-CUCKOO.

Hierococcyx nanus, *Hume, S. F.* v. p. 490; *Hume & Dav. S. F.* vi. pp. 157, 502; *Hume, S. F.* viii. p. 88.

Description.—*Male and female.* “The whole of the lower parts are white, tinged creamy on the lower throat and breast, and more feebly so on the middle of the abdomen and tibial plumes; and all these parts with conspicuous black central stripes; chin, upper throat and lower tail-coverts pure unmarked white; forehead, crown, occiput and nape deep brownish slaty; sides of the neck ferruginous, the feathers dark-centred; nape similar, but the feathers feebly margined with pale ferruginous, and one or two of the feathers on each side white-tipped; entire mantle, wings and back deep brown; the feathers, some of them very obscurely margined with dull ferruginous, showing that the birds are not quite adult, and spots of the same colour on the outer webs of the quills; the inner webs, except towards the tips of the primaries, with broad triangular buffy white bars, coalescing at the margin towards the bases of the feathers; tail tipped with sordid white, then an 0·8 subterminal blackish band, then an 0·6 to 0·8 pale grey-brown interspace, the next succeeding 0·5 blackish-brown band cuspidate on its lower margin, then an 0·5 pale interspace, then an 0·45 dark bar, also cuspidate on the lower margin, then an 0·5 interspace, and then another dark bar; the whole of which, as well as half of the last interspace, hidden by the upper tail-coverts; the entire wing-lining and edge of the wing at the carpal joint uniform cream-colour.” (*Hume.*)

Irides brown; the lower mandible, gape and base of upper mandible greenish yellow; upper mandible and extreme tip of lower mandible dull black; eyelids, legs, feet and claws orange-yellow. (*Davison.*)

Length about 11 inches, tail 5·5, wing 5·6, tarsus ·75, bill from gape 1·1. Judging from Mr. Hume's figures, the sexes do not differ in size.

Hume's Hawk-Cuckoo was discovered in Tenasserim, and, judging from the description and size, it appears to be a very distinct species. It occurs in the southern portion of the Division from Bankasoon to Tavoy and Nwalabo mountain.

H. fugax, from the Malay peninsula, is very similar in colour, but is very much larger, the wing being 7 inches or more in length. Both it and *H. nanus* may be recognized by the white under plumage, streaked with brown or black; and while *H. fugax* has the whole of the sides of the head uniformly grey, *H. nanus*, according to Mr. Hume (I have never seen a specimen), has the sides of the head striped with white and grey in, as I gather, alternating bands.

H. varius, from India, is said by Mr. Blyth to be likely to occur in

Burmah; and Dr. Jerdon, indeed, states that it does occur in Burmah and Malayana. I am not, however, satisfied that Dr. Jerdon wrote from his own knowledge, and therefore I do not include it in the present work. This species is larger than *H. nasicolor*, and the under surface from the breast downwards is barred, not streaked. The wing measures about 8 inches in length.

Genus CACOMANTIS, Müller.

495. CACOMANTIS THRENODES.

THE RUFOUS-BELLIED CUCKOO.

Cacomantis threnodes, Cab. et Hein. Mus. Hein. iv. p. 19; Wald. Trans. Zool. Soc. viii. p. 54; Hume & Dav. S. F. vi. p. 158; Hume, S. F. viii. p. 89; Bingham, S. F. ix. p. 167; Kelham, Ibis, 1881, p. 391; Oates, S. F. x. p. 193. *Poliphasia tenuirostris* (Gray), apud Jerd. B. Ind. i. p. 335. *Polyphasias rufiventris*, Jerd. Ibis, 1872, p. 15. *Cacomantis passerinus* (Vahl), apud Bl. & Wald. B. Burm. p. 80. *Ololygon tenuirostris* (Gray), apud Hume, S. F. iii. p. 80. *Cacomantis rufiventris*, Armstrong, S. F. iv. p. 312; Wardlaw Ramsay, Ibis, 1877, p. 458; Anders. Yunnan Exped. p. 587. *Cacomantis tenuirostris*, David et Oust. Ois. Chine, p. 62.

Description.—*Male.* The whole head and neck all round and the upper breast clear ashy; back, scapulars, coverts and wings brown, overspread with a green gloss; a white patch on the inner webs of the quills; rump and upper tail-coverts dark ashy, most of the feathers tipped paler; tail dark brown, tipped with white; the central feathers notched with white on both webs, the others barred with white on the inner webs; lower breast, abdomen, vent, under tail-coverts, sides of the body and under wing-coverts rufous; some males have the rufous extending up to the throat.

Females, as far as my experience goes, do not assume the plumage of the male. The whole upper plumage, wing-coverts and tail are ferruginous, closely barred with black; the whole lower plumage is rufescent white, closely and finely barred with brown; the wings are brown, with some broken rufous bars on the outer webs.

Young birds are like the females, but the head, neck, throat and breast are *streaked*, not barred, with brown.

Iris pale yellow; upper mandible dark horn; lower mandible brownish orange, except the tip, which is brown; feet brownish yellow or deep yellow; the irides are sometimes brown and occasionally crimson.

Length 9 inches, tail 4·9, wing 4·4, tarsus ·7, bill from gape ·9. The female is of the same size or rather larger.

Birds from Pegu have the wing varying from 4 to 4·6 inches in length;

Indian specimens occasionally have the wing 4·7, and in Tenasserim, according to Mr. Hume, males have the wings mostly under 4·2. Further south, wings of 3·9, Mr. Hume informs us, are not uncommon. Under these circumstances it seems impossible, as in the case of some of the Woodpeckers, to maintain two species on the ground of difference of size. The plumage of all the birds from Bengal to Malacca is identical, and there is really nothing but size to go by. A bird from Java in the British Museum can be matched by birds from Pegu, and the wing measures 4·3 inches in length. It is, I think, very probable that many of the numerous so-called species of this small Cuckoo from the Malayan islands would be found on strict investigation to be nothing more than larger or smaller forms of *C. threnodes*, but I have not had time to enter upon such a wide field of inquiry.

The Rufous-bellied Cuckoo is found abundantly over the whole Province, except in the denser forests on the hills. Capt. Bingham failed to meet with it in the Thoungyeen valley; but I have no doubt it occurs in that part of Tenasserim, for Dr. Tiraud states that it is common in Cochin China, and Mr. Blyth records it from Siam. Capt. Wardlaw Ramsay obtained it in Karennee.

It extends through the Indo-Burmese countries to Bengal, and it visits China, according to Mr. Swinhoe, to breed. It ranges down the Malay peninsula to Singapore, and is also probably found in some of the islands of the archipelago.

This species frequents all descriptions of jungle, even grassy plains and swamps. Its note is a soft monotonous whistle. Capt. Feilden found what he considered to be the eggs of this species at Thayetmyo, in the nests of Tailor-birds.

Genus SURNICULUS, Lesson.

496. SURNICULUS LUGUBRIS.

THE BLACK FORK-TAILED CUCKOO.

Cuculus lugubris, Horsf. *Trans. Linn. Soc.* xiii. p. 179. *Pseudornis dicruroides*, *Hodgs. J. A. S. B.* viii. p. 136. *Surniculus dicruroides*, *Jerd. B. Ind.* i. p. 336; *David et Oust. Ois. Chine*, p. 61. *Surniculus lugubris*, *Salvad. Ucc. Born.* p. 63; *Bl. & Wald. B. Burm.* p. 80; *Hume & Dav. S. F.* vi. p. 159; *Anders. Yunnan Exped.* p. 587; *Legge, Birds Ceylon*, p. 243; *Hume, S. F.* viii. p. 89.

Description.—*Male and female.* Upper plumage glossy black, a few white feathers on the nape; lower surface duller black; under wing-

coverts dull black, with minute white marks, except in very old birds; under tail-coverts black, barred with white; tail glossy bluish black; the outermost pair of feathers barred with white and tipped with the same; the next pair with only a few white spots near the shaft and tipped very slightly; quills black, the tips brown; first primary with a white spot on the inner web; the second spotless; the others and the secondaries with an irregular patch of white on the inner webs; thighs black in front, white behind.

The *young* are black; the head, neck, scapulars, upper wing-coverts, throat, breast and belly spotted with white; upper tail-coverts tipped with white, portions near the shafts also white; all the rectrices are tipped with white; the change to the adult plumage is effected at the first autumn moult.

Bill black; mouth white; iris brown; legs plumbeous; claws blackish.

Length 10 inches, tail 5·3, wing 5·5, tarsus ·65, bill from gape 1·1. The female is of about the same size.

The Black Fork-tailed Cuckoo is found over the whole of British Burmah and Karennee.

It is found throughout the Indo-Burmese countries, India, and Ceylon. It ranges into China, Siam and Cochin China, and it extends down the Malay peninsula to Sumatra, Java and Borneo.

This Cuckoo bears such a close resemblance to the Black Drongo that it is difficult to discriminate the two birds when seen alive. It frequents forests and gardens, and appears to be a constant resident. Its food is chiefly caterpillars. It probably lays its eggs in the nests of *Buchanga atra* or other allied species.

Genus CHRYSOCOCCYX, *Boie*.

497. CHRYSOCOCCYX MACULATUS.

THE EMERALD CUCKOO.

Trogon maculatus, *Gm. Syst. Nat.* i. p. 404; *Legge, Birds Ceylon*, p. 238. *Chrysococcyx smaragdinus*, *Bl. J. A. S. B.* xv. p. 53. *Chrysococcyx hodgsoni*, *Moore, in Horsf. & Moore, Cat. Birds Mus. E.I. Co.* ii. p. 705; *Jerd. B. Ind.* i. p. 338; *Dav. et Oust. Ois. Chine*, p. 62. *Chrysococcyx schomburgki*, *Gould, P. Z. S.* 1864, p. 73. *Chrysococcyx maculatus*, *Bl. B. Burm.* p. 80; *Wald. Ibis*, 1876, p. 345; *Wardlaw Ramsay, Ibis*, 1877, p. 458; *Hume, S. F.* viii. p. 89; *Bingham, S. F.* ix. p. 167; *Oates, S. F.* x. p. 193. *Lamprococcyx maculatus*, *Hume & Dav. S. F.* vi. pp. 161, 502.

Description.—*Male*. The whole head and neck, breast and entire upper plumage, with the wings and tail, metallic bluish green, the wings tinged

with blue and the inner webs marked with white, the outer tail-feathers with large white spots; the lower plumage, from the breast downwards, white barred with metallic green.

Males not quite mature have the forehead, sides of the head, chin, throat and breast barred with white.

I have not been able to examine an adult female of this species; but it probably differs from the male.

Two immature birds have the whole forehead, crown and nape unbarred rufous.

Legs and feet dark brownish green; bill bright orange-yellow, tipped black; irides red-brown. (*Davison*.)

Length 7 inches, tail 3, wing 4·4, tarsus ·6, bill from gape ·85.

Specimens of this species are tolerably common in collections in England; but they are not sexed. I am consequently unable to state in what way, if any, the female differs from the male. The Siamese bird, named by Mr. Gould, appears to me, from the examination of the type in the British Museum, to be identical with some birds from the Himalayas.

The Emerald Cuckoo is found over the greater portion of the Province. Colonel Lloyd sent it to England from Tonghoo, and Capt. Wardlaw Ramsay procured it in the Karin hills near that town. Mr. Olive got one specimen near Prome, which I had the opportunity of examining. Mr. Davison observed it in Tenasserim as far south as Mooleyit mountain, and Capt. Bingham in the Thoungyeen valley. Mr. Blyth states that it is found in Arrakan.

It occurs in various parts of India from the Himalayas to Ceylon, and it extends into Western China and Siam.

498. CHRYSOCOCCYX XANTHORHYNCHUS.

THE VIOLET CUCKOO.

Cuculus xanthorhynchus, *Horsf. Trans. Linn. Soc.* xiii. p. 179; *id. Zool. Res. Java*, pl. *Cuculus malayanus*, *Raffl. Trans. Linn. Soc.* xiii. p. 286. *Chrysococcyx xanthorhynchus*, *Salvad. Ucc. Born.* p. 62; *Bl. B. Burm.* p. 80; *Wardlaw Ramsay, Ibis*, 1877, p. 459; *Hume, S. F.* viii. p. 89; *Oates, S. F.* x. p. 193. *Chalcococcyx xanthorhynchus*, *Hume, S. F.* ii. p. 191, iii. p. 81; *Hume & Dav. S. F.* vi. pp. 161, 506. *Lamprococcyx malayanus*, *Hume & Dav. S. F.* vi. p. 503; *Hume, S. F.* viii. p. 89.

Description.—*Male.* The whole plumage brilliant violet-purple, except on the abdomen, vent, under tail-coverts and under wing-coverts, which are

barred with white and greenish purple ; outer tail-feathers with large white spots on both webs.

In the *adult female* the whole lower surface, from the chin to the tip of the under tail-coverts, the lores, cheeks, ear-coverts and sides of neck are white, closely barred across with greenish bronze ; the bars on the under tail-coverts are broader and wider apart than elsewhere ; the head, neck, back, rump and upper tail-coverts are shining bronze, tinged with copper on the head ; the forehead and feathers over the eye are speckled with white ; the lesser wing-coverts are brilliant bronze, each feather narrowly edged with rufous ; the greater coverts are less brilliant, and are broadly notched all round with rufous ; primaries brown glossed with green, very narrowly edged with rufous, and the later ones also tipped with the same ; the inner web of all with a broad streak of rufous along the basal two thirds of the edge ; secondaries and tertiaries greenish bronze, edged all round with rufous ; centre pair of rectrices uniform bronze-green, tinged with blue near the tip ; the next pair has on each web alternate triangular patches of greenish brown and rufous, the bases of the brown patches and the apices of the rufous ones lying next the shaft ; in the next pair the brown patches are less in extent, each pair being fully separated from the next by the rufous and the tip is white ; the next pair again is very similar, the brown being still further reduced and the white tip broader ; the outer pair is rufous, with four black bars, and on the outer web between each pair of black bars there is a white patch and the tip is broadly white.

In *less mature females* the central rectrices are barred greenish brown and rufous ; the white spots on the outer pair extend to both webs ; the upper plumage everywhere is closely barred with rufous ; the lower plumage at all ages is the same.

Immature males have from a very early age one or more violet feathers showing out in the plumage, and their recognition is consequently easy. The change goes on by an easy transition, and not by a moult. In October the change appears to have just begun, and by February the full plumage is assumed. The young male never assumes the adult plumage of the female, the change to mature male plumage taking place while the upper surface is densely barred with rufous. The young male differs in nothing from the young female, except that the green bars below are much broader and further apart.

In the *nestling* the head and neck are rufous streaked with black ; the remainder of the upper plumage, wings and tail brown ; the secondaries, tertiaries and the four central tail-feathers with rufous spots on the marginal halves of the webs ; the other tail-feathers, the wing-coverts, scapulars, back, rump and upper tail-coverts barred with rufous ; lower plumage pale fulvous, barred with dull brown.

Male: bill orange-yellow ; iris red ; eyelids green, the edges red ;

mouth orange; legs greenish brown; claws black. *Female and young*: base of bill and gape orange; terminal portion of the bill dark brown; the other parts as in the male.

Length 6·5 inches, tail 3, wing 4, tarsus ·6, bill from gape ·75. The female is of the same size.

I have no doubt, after carefully examining a large series of these birds, that *C. xanthorhynchus* and *C. malayanus* are the same species, the former being the male, the latter the female. I have already (*l. c.*) fully entered into this question.

The Violet Cuckoo is apparently found in all parts of Burmah and Karennee. I met with it very abundantly at Kyeikpadein and near Rangoon, and I also procured it near Thayetmyo. Lieut. Lloyd, R.E., shot a specimen in Karennee, and Capt. Wardlaw Ramsay also records it from that State. In Tenasserim Mr. Davison obtained it at various points, and my men secured specimens at Malewoon.

It extends north to Cachar and the hill-tracts of Eastern Bengal, and it also occurs in the Andaman Islands. It is recorded from Cochin China, the Malay peninsula, Sumatra, Java, Borneo and the Philippine Islands.

This small and lovely Cuckoo is usually found in dense groves of trees searching among the leaves for caterpillars, which form the chief portion of its food. It is a silent bird, and is likely to escape observation; for it is very quiet in its movements. It is a constant resident in Burmah, and probably lays its eggs in the nests of the Grass-Warblers.

499. CHRYSOCOCCYX LIMBORGI.

THE WHITE-COLLARED VIOLET CUCKOO.

Chrysococcyx limborgi, Tweedd. *P. Z. S.* 1877, p. 366; *Hume, S. F.* vii. p. 319, viii. p. 89; *Bingham, S. F.* ix. p. 168.

Description.—*Adult male.* Like *C. xanthorhynchus*, but with a broad white collar on the upper back reaching to the sides of the neck.

Bill yellow; legs rich green; irides red. (*Limborg*.)

Length about 7 inches, tail 3·1, wing 4, tarsus ·55, bill from gape ·8.

The only bird of this species I have been able to examine is the type specimen in Capt. Wardlaw Ramsay's collection. The white collar is extremely regular in shape and symmetrical, and there is nothing, *prima facie*, to lead me to consider it an accidental variety.

The type was shot in Tenasserim at the base of Mooleyit mountain on the HOUNG-DRAW river; and Capt. Bingham records the occurrence of a Violet Cuckoo with indications of the white collar in the Thoungyeen

valley, not very far from where Mr. Limborg procured the typical and only specimen he obtained. Not one out of a very numerous series of *C. xanthorhynchus* from the Pegu Division exhibits any white on the back or hind neck; so that, on the whole, I am inclined to consider *C. limborgi* a distinct species, confined, so far as we at present know, to Tenasserim.

Genus COCCYSTES, *Gloger*.

500. COCCYSTES COROMANDUS.

THE RED-WINGED CRESTED CUCKOO.

Cuculus coromandus, *Linn. Syst. Nat.* i. p. 171. *Coccystes coromandus*, *Jerd. B. Ind.* i. p. 341; *Hume, Nests and Eggs*, p. 138; *Salvad. Ucc. Born.* p. 67; *Hume, S. F.* iii. p. 82; *Bl. B. Burm.* p. 81; *David et Oust. Ois. Chine*, p. 61; *Legge, Birds Ceylon*, p. 249; *Hume & Dav. S. F.* vi. p. 162; *Hume, S. F.* viii. p. 89; *Scully, S. F.* viii. p. 257.

Description.—*Male and female.* Forehead, lores, feathers under the eye, cheeks, ear-coverts, crown, nape and crest black; chin, throat and fore neck fulvous; a white collar round the hind neck; upper plumage, tail, lesser wing-coverts and the innermost greater coverts black, tinged with green and blue; the tail-feathers tipped with dirty white, increasing in extent towards the outside; primaries, secondaries and greater coverts chestnut tipped with brown; tertiaries glossy brown; under wing-coverts pale chestnut; breast and abdomen white, tinged with fulvous; vent smoky brown, turning to black on the coverts, which are also tipped with whitish; thighs and sides of the body greyish brown tinged with rufous.

The *young* have the black in the upper plumage of the adult replaced by glossy brown edged with rufous; the collar is tinged with rufous; chin, throat and upper breast fulvous-white; the tail-feathers have larger tips.

Bill black; mouth salmon-colour; iris pale reddish brown; eyelids plumbeous; legs plumbeous; claws horny. The young have the iris brown, the gape orange.

Length 18.5 inches, tail 10, wing 6.4, tarsus 1.1, bill from gape 1.4. The female is quite as large as the male.

The Red-winged Crested Cuckoo is very common over the whole of Pegu, except in the large grassy plains of the south. Mr. Blyth records it from Arrakan. Mr. Davison states that it is extremely rare in Tenasserim, and he procured it only at Amherst and near Tavoy. Capt. Wardlaw Ramsay observed it in Karennee.

It is a bird of wide range, as it occurs in the Indo-Burmese countries, the

peninsula of India, Ceylon, the Malay peninsula, Siam, China and Cochin China, Sumatra, Java, Borneo and the Philippine Islands.

This handsome Cuckoo is generally seen singly or in pairs in thick jungles, especially those in which bamboos form the chief portion of the vegetation. It is entirely arboreal, feeding on caterpillars. Capt. Feilden found the egg of this Cuckoo at Thayetmyo in the nest of a Quaker-Thrush; it was very round and pale blue.

501. COCCYSTES JACOBINUS.

THE CRESTED PIED CUCKOO.

Cuculus jacobinus, Bodd. *Tabl. Pl. Enl.* p. 53. *Cuculus melanoleucos*, Gm. *Syst. Nat.* i. p. 416; *Wald. Ibis*, 1869, p. 332. *Coccystes melanoleucus*, *Jerd. B. Ind.* i. p. 339. *Coccystes jacobinus*, *Hume, Nests and Eggs*, p. 137; *Bl. B. Burm.* p. 81; *Legge, Birds Ceylon*, p. 246; *Hume, S. F.* viii. p. 89. *Oxylophus jacobinus*, *Hume, S. F.* iii. p. 81.

Description.—*Male and female.* Whole upper plumage black glossed with green, the wings rather browner; tail black, broadly tipped with white except on the centre feathers, where the tips are very narrow; the base of the primaries white; sides of the head black; whole lower plumage and sides of the neck white; under wing-coverts white tipped with black.

Iris reddish brown; eyelids greyish brown; bill black; mouth flesh-colour; feet lead-colour; claws horn-colour.

Length 13 inches, tail 6·8, wing 6, tarsus 1·1, bill from gape 1·2. The female is of the same size.

The Crested Pied Cuckoo occurs at Thayetmyo and its immediate vicinity down to Prome, and, so far as is at present known, in no other part of British Burmah.

It is found over the whole peninsula of India from Cashmeer to Ceylon, and it will probably be met with in the drier portions of the Indo-Burmese countries. A Cuckoo which is closely allied to, if not indeed identical with, the present species inhabits South Africa.

This Cuckoo is found commonly in the scrub-jungle which surrounds the cantonment of Thayetmyo, and, owing to its conspicuous black-and-white plumage and crested head, does not easily escape observation. I have traced it to the foot of the Pegu hills on the east and down to Engmah to the south, and these are its extreme limits to the east and south. It probably extends some way north and west of Thayetmyo, but how far I cannot say. It is usually seen singly, and it appears to seek its food on the ground as frequently as on trees. It has a rather loud call-note.

Capt. Feilden remarks that he has seen a pair of nestlings of this bird on the same branch, and that it probably lays two eggs in the same nest. The eggs are deep blue in colour.

Genus EUDYNAMIS, *Vig. & Horsf.*

502. EUDYNAMIS MALAYANA.

THE MALAYAN COËL.

Eudynamis malayana, *Cab. et Hein. Mus. Hein.* iv. p. 52; *Wald. Ibis*, 1869, p. 339, 1873, p. 303; *Salvad. Ucc. Born.* p. 68; *Hume, S. F.* ii. p. 192, iii. p. 82; *Bl. & Wald. B. Burm.* p. 81; *Wald. Trans. Zool. Soc.* ix. p. 162; *David et Oust. Ois. Chine*, p. 61; *Hume & Dar. S. F.* vi. p. 162; *Hume, S. F.* viii. p. 89; *Bingham, S. F.* ix. p. 168; *Kelham, Ibis*, 1881, p. 392. *Eudynamis chinensis* (*Cab. et Hein.*), *apud Bl. B. Burm.* p. 81.

Description.—*Male.* The whole plumage black glossed with blue.

The *female* has the whole head and neck streaked with black and rufous in varying proportions according to age; the whole lower plumage pale rufous, cross-barred with black zigzag lines; the upper plumage dark brownish black spotted with rufous; wings, tail and upper tail-coverts black broadly barred with rufous; the whole plumage shot with green and blue. Other females differ in having the head-streaks deep rufous-bay; others have the head nearly all black, the rufous streaks being narrow and few; the bars on the lower plumage and the spots on the upper also vary much in size.

Young males have the wings and greater coverts dull brown, the coverts tipped with white; the under wing-coverts are also tipped with white; the lateral tail-feathers are irregularly barred with white near their tips.

Bill dull green, dusky at the gape and about the nostrils; mouth flesh-colour; iris bright crimson; eyelids pinkish brown; legs plumbeous; claws dark horn.

Length 17 inches, tail 8, wing 8, tarsus 1.3, bill from gape 1.6. The female is of about the same size.

This species differs from the Indian *E. honorata* in the male being larger with a larger bill, and in the female having the whole head and neck streaked with black and the bars and spots on the body-plumage rufous, whereas the female of *E. honorata* has these latter white.

The Malayan Coël is abundant throughout British Burmah from February to June. At other times of the year it is altogether absent. It extends on the north as far as Cachar and the hill-tracts of Eastern Bengal,

but apparently not to Nipal, as has been stated. It occurs in the Malay peninsula, Sumatra, Java, Borneo, Siam and Cochin China, and it is also recorded from China.

The well-known Coël arrives in Burmah at the commencement of the hot season, and all the country becomes alive with these handsome Cuckoos at about the same time. Its loud and melodious call strikes the ear everywhere alike in dense forest and in cultivated grounds. It lays its eggs in the nests of Crows; and Dr. Tiraud states that in Cochin China the eggs are also placed in the nests of Mynahs. I have seen Jungle-Crows carefully tending young Coëls as late as the 23rd May. The eggs are green blotched with reddish brown.

Subfamily PHŒNICOPHÆINÆ.

Genus RHINORTHA, *Vigors*.

503. RHINORTHA CHLOROPHÆA.

THE SMALL GREEN-BILLED MALKOHA.

Cuculus chlorophæus, *Raffl. Trans. Linn. Soc.* xiii. p. 288. *Rhynortha chlorophæa*, *Salvad. Ucc. Born.* p. 69. *Rhinortha chlorophæa*, *Bl. B. Burm.* p. 82; *Hume & Dav. S. F.* vi. p. 166; *Hume, S. F.* viii. p. 89.

Description.—*Male*. Forehead, crown, nape, sides of the head and neck, back and wings chestnut, deeper on the wings, the quills of which are tipped with dusky; rump and upper tail-coverts smoky brown, closely and indistinctly barred with yellowish brown; tail dark smoky brown or blackish tipped with white, the whole surface, except near the white tips, closely barred with yellowish brown; cheeks, chin, throat and breast pale chestnut or buff, passing to dusky on the lower breast; remainder of the lower plumage smoky grey obsoletely barred darker; under wing-coverts chestnut.

The *female* has the forehead, crown, nape, sides of the head and neck grey; the remainder of the upper plumage bright chestnut; the quills tipped dusky; the tail tipped white, with a subterminal black bar; chin, throat and upper breast grey, paler than the head, and in some birds tinged with fulvous; lower breast fulvous, deepening on the abdomen and sides of the body; vent and under tail-coverts dull chestnut; under wing-coverts chestnut.

Legs and feet dark plumbeous; claws black; bill apple-green; orbital skin pale green inclining to bluish; irides dark brown. (*Davison*.)

Length 13 inches, tail 7, wing 4.5, tarsus 1.1, bill from gape 1.4. The female is of the same size.

This species, according to Mr. Davison, is found in Tenasserim as far north as Lemyne, a village about a day's march north of Yea, but it is nowhere very common.

It ranges through the Malay peninsula to Sumatra, Java and Borneo.

Mr. Davison says that "it frequents the densest parts of the evergreen forests and cane-brakes and densest of scrubby jungle. In all its habits it resembles *Rhopodytes*, but has quite a different note, a peculiar cat-like mew (not the chuckle of the others), which it utters at short intervals as it threads its way through the tangled foliage. It is almost invariably found in pairs. They also feed apparently entirely (I have dissected many) on insects."

Genus RHOPODYTES, *Cab. et Hein.*

504. RHOPODYTES TRISTIS.

THE LARGE GREEN-BILLED MALKOHA.

Melias tristis, *Less. Tr. d'Orn.* p. 132; *id. Voy. Bélang.* p. 231, *Ois.* pl. 1. **Zanclostomus tristis**, *Jerd. B. Ind.* i. p. 345; *Hume, Nests and Eggs*, p. 142; *Bl. B. Burm.* p. 81; *David et Oust. Ois. Chine*, p. 58; *Oates, S. F.* v. p. 144. **Rhopodytes tristis**, *Armstrong, S. F.* iv. p. 312; *Hume & Dav. S. F.* vi. p. 162; *Hume, S. F.* viii. p. 89; *Bingham, S. F.* ix. p. 168; *Oates, S. F.* x. p. 196.

Description.—*Male and female.* Lores sparingly covered with black feathers; forehead and feathers over the eye white, the bases of the feathers black; upper plumage dark greenish grey, the front of the crown centred with black; wings, coverts, scapulars, upper tail-coverts and tail shining green, the primaries darker, and the tail-feathers tipped broadly with white; under-side of tail dull black; cheeks and throat greyish white, with black shafts; neck and breast grey tinged with rusty, the shafts black; abdomen, flanks, thighs, vent and under tail-coverts smoky brown tinged with green; centre of the abdomen paler; under wing-coverts smoky brown tinged with green.

Bill bright green, pinkish about the nostrils; orbital skin purplish red; iris hazel-brown; mouth dusky; legs greenish slaty; claws dark horn. The female has the orbital skin blood-red; mouth deep black iris red.

Length 24 inches, tail 16, wing 6·5, tarsus 1·3, bill from gape 1·6. The female is rather larger than the male.

The Large Green-billed Malkoha is a common bird all over Pegu, both in the hills and plains. It extends in Tenasserim, according to Mr. Davison, as far as Mergui and the Tenasserim river; Capt. Bingham says it is common in the Thoungyeen valley, and Capt. Wardlaw Ramsay procured it in Karennee. It is probably common in Arrakan.

Out of Burmah it has been found, according to Mr. Blyth, at Penang and Malacca. Mr. Swinhoe got it in Hainan, and Dr. Tiraud states that it occurs in Cochin China. North of Burmah it ranges through the Indo-Burmese countries into India, being found from the foot of the Himalayas down to Central India.

This species frequents all sorts of jungle, and is as common in orchards and spare bush-jungle as in deep forests. It goes about solitary or in pairs, gliding among the branches of trees and shrubs in a quiet manner, seldom displaying itself, notwithstanding its long tail. Its food appears to be caterpillars and grasshoppers, and probably insects of all sorts, as well as small reptiles. It has a low chuckling note.

I have frequently found the nest of this Malkoha in Pegu from June to August. It is a slight structure constructed of a few dead twigs and leaves, and placed in a bush or on a leafy bamboo. The eggs are white, very chalky in texture, and two in number.

505. RHOPODYTES DIARDI.

DIARD'S GREEN-BILLED MALKOHA.

Melias diardi, *Less. Tr. d'Orn.* p. 132. *Zanclostomus diardi*, *Bl. B. Burm.* p. 81. *Rhopodytes diardi*, *Hume & Dav. S. F.* vi. p. 163; *Hume, S. F.* viii. p. 89.

Description.—*Male and female.* Forehead, crown, nape, upper back, sides of the head and neck ashy grey; remainder of upper plumage metallic green tinged with blue; tail tipped with white; chin, throat and breast of the same colour as the head but paler, becoming dusky on the abdomen and sides of the body and smoky brown on the vent and under tail-coverts.

Legs and feet dark plumbeous green; bill pale green; irides dark brown; the bare orbital space crimson; edges of eyelids black. (*Davison.*)

Length 14 inches, tail 9, wing 5, tarsus 1·2, bill from gape 1·4. The female is of the same size.

Diard's Green-billed Malkoha has been found in Tenasserim from

Mergui southwards. It extends down the Malay peninsula and it occurs in Sumatra and in Cochin China. It is also said to have been met with in Java.

Mr. Davison, who observed this Malkoha in Tenasserim and other places, says :—" In its habits and notes this species resembles *R. tristis* ; but I have occasionally found it in the evergreen forests of the Pakchan. I found it common everywhere in the Malay peninsula and shot many, but noticed nothing distinctive in its habits, food or voice."

Genus POLIOCOCCYX, Sharpe.

506. POLIOCOCCYX SUMATRANUS.

THE SUMATRAN GREEN-BILLED MALKOHA.

Cuculus sumatranus, *Raffl. Trans. Linn. Soc.* xiii. p. 287. *Rhopodytes sumatranus*, *Salvad. Ucc. Born.* p. 73; *Hume & Dav. S. F.* vi. p. 164; *Hume, S. F.* viii. p. 89; *Kelham, Ibis*, 1881, p. 393.

Description.—*Male and female.* Like *R. diardi*, but with the centre of the abdomen, vent and under tail-coverts deep chestnut; the facial skin is bordered above by a very narrow white band, and it is also considerably larger.

Legs and feet plumbeous green; bill pale green; bare orbital space clear orange, palest round the eye, shading to blood-red at the posterior angle. (*Davison.*)

Length 16 inches, tail 9, wing 6·2, tarsus 1·5, bill from gape 1·5. The female is of about the same size.

The Sumatran Green-billed Malkoha has been found in Tenasserim by Mr. Davison. He says :—" In the secondary scrub, with which a great portion of the island of Mergui is covered, this species was quite a common bird. To the north of Mergui I did not meet with it at all, and to the south but seldom, although I met with many places that appeared to me quite as suitable as the places it frequented on the island of Mergui."

It extends through the Malay peninsula and inhabits Sumatra, Bangka, Java and Borneo.

Mr. Davison remarks that the habits of this species are precisely like those of *R. tristis*. Lieut. Kelham found the nest near Perak on the 16th of March. He says :—" The nest was a loosely-put-together structure of dry twigs, slightly cup-shaped, and built at about 5 feet from the ground, in a bush standing on the edge of a jungle-path. The eggs, two in number, were

nearly hatched ; they were $1\frac{1}{6}$ inch in length, in colour white, but much stained with brown matter.

“The bird appears to build its own nest, and certainly hatches its own egg ; for on two occasions during the last few days I have stood close by and watched it sitting. It did not utter any note or cry, not even when disturbed from its nest.”

Genus RHAMPHOCOCCYX, *Cab. et Hein.*

507. RHAMPHOCOCCYX ERYTHROGNATHUS.

THE GREATER RED-BILLED MALKOHA.

Phœnicophæus erythrognathus, *Hartl. Verz. Mus. Brem.* p. 95. *Rhamphococcyx erythrognathus*, *Salvad. Ucc. Born.* p. 74; *Hume, S. F.* viii. p. 89; *Kelham, Ibis*, 1881, p. 393. *Phœnicophaës erythrognathus*, *Bl. B. Burm.* p. 81. *Phœnicophaus erythrognathus*, *Hume & Dav. S. F.* vi. p. 165.

Description.—*Male and female.* Forehead, crown, nape, ear-coverts, a mandibular stripe and the angle of the chin ashy grey ; the whole upper plumage, including the wings, metallic green ; the primaries tinged with blue ; lower plumage and sides of neck chestnut, becoming tinged with blackish more and more till the vent and thighs are smoky black ; under tail-coverts dull ferruginous ; tail metallic green, the terminal third of the feathers being deep ferruginous ; under wing-coverts greenish.

Legs and feet dark plumbeous, or dark bluish or plumbeous green ; facial skin deep red ; lower mandible to beyond the gonys, and upper mandible at base below the nostril, dark maroon-red ; rest of upper mandible pale green ; rest of lower mandible green, generally darker than the upper mandible, sometimes shaded with dusky ; irides turquoise- or pale blue in the male, bright yellow in the female. (*Davison.*)

Length 19 inches, tail 10·5, wing 6·8, tarsus 1·65, bill from gape 1·8. The female is rather smaller.

The Greater Red-billed Malkoha has been found in Tenasserim by Mr. Davison. It appears to be very common in the southernmost portions, getting rarer northwards and apparently not occurring north of the Yea river.

It inhabits the Malay peninsula, extending into Sumatra, Bangka and Borneo.

Mr. Mottley, as quoted by Dr. Selater in the P. Z. S. 1863, remarks of this bird in Borneo :—“A rather common bird about Martapura in the dry

gravelly thickets, concealing itself among the bushwoods, and when disturbed taking very short flights. Its note is a hoarse chatter, much like that of a Magpie."

Mr. Davison states that it frequents open forest, gardens and thick secondary scrub, by preference the latter.

Genus ZANCLOSTOMUS, *Swains.*

508. ZANCLOSTOMUS JAVANICUS.

THE LESSER RED-BILLED MALKOHA.

Phœnicophaus javanicus, *Horsf. Trans. Linn. Soc.* xiii. p. 178; *id. Zool. Res. Java*, pl. *Zanclostomus javanicus*, *Salvad. Ucc. Born.* p. 75; *Bl. B. Burm.* p. 81; *Hume & Dav. S. F.* vi. p. 167; *Hume, S. F.* viii. p. 89.

Description.—*Male and female.* Forehead, crown, nape, the sides and back of the neck and the ear-coverts ashy grey, tinged with fulvous on the forehead; remainder of the upper plumage, wings and tail metallic green tinged with blue; the tail-feathers tipped with white; lores, cheeks, chin, throat, fore neck and breast chestnut; abdomen fulvous-grey; vent and under tail-coverts deep chestnut; sides of the body and under wing-coverts ashy.

Legs and feet plumbeous, dark and with more or less of a green shade; bill coral-red; gape dull smalt; naked space round the eye blue, in some pale, in some a bright smalt; irides brown, in some deep, in some light; in somewhat younger birds the culmen and tip of lower mandible are black. (*Davison.*)

Length 18 inches, tail 11, wing 5·8, tarsus 1·3, bill from gape 1·5. The female is of the same size.

The Lesser Red-billed Malkoha is found in Tenasserim from Tavoy southwards.

It extends down the Malay peninsula, and it is met with in Sumatra, Java and Borneo.

There is nothing on record about its habits.

Subfamily CENTROPINÆ.

Genus CENTROCOCCYX, *Cab. et Hein.*

509. CENTROCOCCYX INTERMEDIUS.

THE BURMESE COUCAL.

Centrococcyx intermedius, *Hume, S. F. i. p. 454; Hume & Dav. S. F. vi. p. 168; Hume, S. F. viii. p. 89; Bingham, S. F. ix. p. 169. Centropus rufipennis*, *apud Bl. & Wald. B. Burm. p. 81. Centropus eurycercus, apud Wald. in Bl. B. Burm. p. 82. Centrococcyx eurycercus, apud Hume, S. F. iii. p. 83; Armstrong, S. F. iv. p. 312. Centropus intermedius, Oates, S. F. v. p. 145.*

Description.—*Male and female.* Whole head, neck, upper back and the entire lower surface black, glossed with purple and lilac; the shafts rigid and shiny; the scapulars, the middle portion of the back, the wings and coverts bright chestnut; lower back and rump black glossed with purple, the feathers soft and decomposed; upper tail-coverts glossy black, the feathers firm; under wing-coverts black, barred with rufous: the bars appear to disappear with age.

The *young bird from the nest* has the head above and mantle dark brown, with spots of pale rufous on the head turning to bars on the mantle; sides of the head and neck and the whole lower plumage brown, closely barred with greyish white; wings and coverts dark greenish brown broadly barred with chestnut; middle of the back brown, barred with chestnut; lower back and rump brown; upper tail-coverts dark brown, barred with white; tail greenish brown, irregularly barred with whitish; under wing-coverts brown, barred with white. In December the bars on the head and mantle disappear, and a purple gloss makes its appearance; the wing-coverts, scapulars, middle back and most of the primaries, not all, change to a dull uniform chestnut; some of the tail-feathers change to greenish black; on the lower plumage the white bars become indistinct and disappear in places. The adult plumage is completely donned by April.

Bill black; iris crimson; eyelids and gape purpurescent; mouth flesh-coloured; legs and claws black.

Length 19 inches, tail 10, wing 7·5, tarsus 2·2, bill from gape 1·8. The female is considerably larger.

There are four closely allied species of large Coucals in India, Burmah and the Malay peninsula. *C. intermedius*, *C. maximus*, and *C. rufipennis* have the tail glossed with green, *C. eurycercus* has it glossed with blue. The first three may be distinguished—*C. maximus* by its large size, wing 9 to 9·5 inches, and red interscapulary region; *C. intermedius* by its smaller

size, wing 7·5 to 8·2 inches, and red interscapular region; and *C. rufipennis*, which is about the same size as *C. intermedius*, by the entire absence of red on the interscapular region. *C. acheenensis* is a species described by Messrs. Hume and Davison from North-west Sumatra; it belongs to the blue-tailed section, and differs from *C. eurycercus* in being much smaller. I have not been able to examine a specimen of this species.

Mr. Swinhoe (P. Z. S. 1871, p. 393) makes the following remarks:—"I can find no distinctive characters between the Chinese and Bengalese specimens; but birds from Siam have the back chestnut as well as the scapulars, = *C. eurycercus*, A. Hay." I gathered from this that the Chinese bird has no red on the back, and therefore it cannot be *C. intermedius*; but Chinese birds which I have examined in the Swinhoe collection have the interscapular region chestnut, and appear to me to be inseparable from Burmese examples.

The Burmese Coucal is distributed over the whole of British Burmah. Capt. Wardlaw Ramsay records it from the Karin hills, but not from Karennee.

It extends through the Indo-Burmese countries to Eastern Bengal, and appears to be spread over China.

The Burmese Coucal is one of those birds which is known to every resident in the Province, both from its striking plumage and its loud call. The latter consists of a series of deep-sounding *hoots*. It frequents thick entangled jungle, and feeds almost entirely on the ground, on large insects and small reptiles. In July or August it makes an immense nest, domed at the top, about a foot and a half high and fully a foot in diameter. It is chiefly made of grass, but leaves, and sometimes twigs, are incorporated with the structure. It is placed in trees at a considerable height from the ground, and also in elephant-grass. The eggs, two or three in number, are white. This bird is better known perhaps by the name "Crow Pheasant."

510. CENTROCOCCYX BENGALENSIS.

THE LESSER COUCAL.

Cuculus bengalensis, Gm. Syst. Nat. i. p. 412. *Centropus bengalensis*, Jerd. B. Ind. i. p. 350; Hume, Nests and Eggs, p. 144; Bl. B. Burm. p. 82; David et Oust. Ois. Chine, p. 59; Oates, S. F. v. p. 146; Hume & Dav. S. F. vi. p. 171; Gammie, S. F. v. p. 385; Bingham, S. F. ix. p. 169. *Centrococcyx bengalensis*, Wald. Trans. Zool. Soc. viii. p. 59; Hume, S. F. iii. p. 84, viii. p. 89; Oates, S. F. x. p. 196; Kelham, Ibis, 1881, p. 395.

Description.—*Male and female in summer*. Head, neck and lower plumage black glossed with purple, the shafts glistening black; wings, coverts,

scapulars and back pale chestnut, the quills dusky at their tips, and some of the feathers of the coverts, scapulars and back with yellow shaft-stripes; rump and upper tail-coverts bluish black; tail black, tipped narrowly with yellowish white; under wing-coverts pale chestnut.

In winter both sexes have the head from the forehead to the nape, the back and sides of the neck and the scapulars brown edged with rufous and with yellowish shaft-stripes; back, rump, wing-coverts and tail-coverts greenish black, barred with rufous; chin, throat and breast fulvous, with pale shaft-lines; abdomen, sides of the body, vent and under tail-coverts darker fulvous, closely barred with black; tail greenish black, tipped with yellowish white; wings dull chestnut, the quills darker at the tips, the coverts with pale shaft-lines; under wing-coverts rufous.

The following variations occur:—The tail is frequently barred with rufous, either the whole or only the centre pair of feathers, and occasionally only the ends of the centre pair; the under tail-coverts are sometimes almost black, with few bars; the throat and breast are frequently marked with arrowhead-shaped marks; the length of the upper tail-coverts varies very much.

Iris brown to yellow; eyelids bluish grey to purplish brown; mouth flesh-colour; bill black or coffee-brown, paler on the margins and at the gape; legs plumbeous; claws dark horn.

Length 14·5 to 15·7 inches, tail 7·8 to 8·5, wing 5·3 to 6·4, tarsus 1·8, bill from gape 1·3. The female is of about the same size as the male.

There are many reputed species from the Malayan region, the greater part of them doubtfully distinct from the present species. The investigation of these is beset with difficulties, and does not, moreover, come within the scope of this work. The birds which inhabit British Burmah are undoubtedly all of one species, identical with the Indian bird, the true *C. bengalensis*.

The Lesser Coucal is locally distributed throughout British Burmah, and is also found in Karennee. It is more abundant in the grassy plains of Southern Pegu than elsewhere; but it is also found in considerable numbers in the other parts of the Division, in Arrakan and in Tenasserim.

It ranges through the Indo-Burmese countries, and is met with over a great portion of India. It is said to have been found in the Malay peninsula as far as Singapore; and it occurs in China, Siam and Cochin China, the *C. dimidiatus* of Blyth from China being identical with *C. bengalensis*.

The Lesser Coucal shows a preference for grass-lands, but is also found in well-wooded localities on the edge of paddy-plains. It is a shy bird and is but seldom seen; but during the rains its remarkable note, consisting of a series of *whoops*, followed by a series of notes each of which resembles the word *kurook*, betrays its presence. It makes a large but neat globular nest of grass in a clump of reeds, and lays three white eggs.

Family CAPITONIDÆ.

Genus MEGALÆMA, *G. R. Gray.*

511. MEGALÆMA MARSHALLORUM.

THE GREAT INDIAN BARBET.

Bucco grandis, *Gould, Cent. Him. Birds*, pl. 46. **Megalæma grandis**, *Hume, Nests and Eggs*, p. 128; *Hume & Dav. S. F.* vi. p. 150. **Megalæma virens** (*Bodd.*), *apud Jerd. B. Ind.* i. p. 309; *Marsh. Mon. Capit.* pl. xvi. (part.). **Megalæma marshallorum**, *Swinhoe, Ann. Nat. Hist.* ser. 4, vi. p. 348; *Bl. & Wald. B. Burm.* p. 73; *Wardlaw Ramsay, Ibis*, 1877, p. 457; *Hume, S. F.* viii. p. 88; *Scully, S. F.* viii. p. 250.

Description.—*Male and female.* The whole head, neck, chin, throat and fore neck violet-blue; a yellow collar on the hind neck next the violet-blue, the shafts brighter; breast, wing-coverts, back and scapulars coppery brown; rump and upper tail-coverts green; primary-coverts and primaries black, broadly edged with blue; the other quills brown on the inner webs, green on the outer with more or less of a coppery tinge; tail bluish green; abdomen bluish, turning to green towards the vent; sides of the body streaked with yellow and green; under tail-coverts crimson.

Bill yellow, pale in front, dusky at the edge of the upper mandible; irides brown; legs greenish horny (*Jerdon*). Iris hair-brown; bill dull yellow, tinged with green; culmen blackish; legs dusky green (*Wardlaw Ramsay*).

Length 12 inches, tail 4·5, wing 5·5, tarsus 1·25, bill from gape 2·3.

The Great Indian Barbet was observed to be very common on the Karin hills east of Tonghoo by Capt. Wardlaw Ramsay; and Mr. Blyth states that it occurs in Arrakan. I can find no other record of its occurrence in British Burmah.

According to Dr. Jerdon it is found throughout the Himalayas; and Col. Godwin-Austen procured it in the hill-tracts of Eastern Bengal.

All the Barbets have certain habits in common. They are arboreal, frequenting forests and tree-jungle; they have a very loud monotonous call, which they utter throughout the whole day; they are found singly or in pairs; their flight is strong; they feed entirely on fruits; and they lay two or three white eggs in a hole in a tree, which they generally excavate for themselves.

The present species, one of the largest of the family, breeds in the Himalayas from Bhootan to Cashmeer from May to July.

512. MEGALÆMA VIRENS.

THE GREAT CHINESE BARBET.

Bucco virens, Bodd. *Tabl. Pl. Enl.* p. 53. *Bucco grandis*, Gm. *Syst. Nat.* i. p. 408.

Megalæma virens, Swinhoe, *P. Z. S.* 1871, p. 391; *David et Oust. Ois. Chine*, p. 56; *Hume & Dav. S. F.* vi. p. 150; *Hume, S. F.* viii. p. 88; *Bingham, S. F.* ix. pp. 165, 473.

Description.—*Male and female.* Similar to *M. marshallorum*, but with the head a duller blue and without the yellow collar on the hind neck. Some few birds, however, exhibit yellowish shaft-stripes on this part, but they are obscure and not visible without close scrutiny.

Bill and gape wax-yellow, the former whitish at the top and horny at tip; irides dark brown; legs and feet dirty sap-green; claws horny. (*Bingham.*)

Length 13·2 inches, tail 4·6, wing 5·8, tarsus 1·2, bill from gape 2·1.

The Great Chinese Barbet differs very constantly from its Indian ally in the characters pointed out above, and appears to be quite worthy of separation. Another species, which, however, I have not been able to examine, is *M. lagrandieri*, J. Verreaux, from Cochin China.

Mr. Davison met with this Barbet in the neighbourhood of Pahpoo in Tenasserim, and Capt. Bingham states that it is quite common in the Thoungyeen valley. Elsewhere it is known to occur only in China, in the Fokien and Canton provinces.

Mr. Davison remarks that this species frequents the higher forest trees, and has the same wailing cry of “*pio-pio-pio*” as its Himalayan ally. Capt. Bingham found the eggs in Tenasserim in February and March. The eggs were either two or three, and the nest-holes were situated at twenty to thirty feet from the ground.

Genus CHOTOREA, Bonap.

513. CHOTOREA MYSTACOPHANUS.

THE GAUDY BARBET.

Bucco mystacophanos, Temm. *Pl. Col.* 315. *Megalæma mystacophanus*, Marsh. *Mon. Capit.* pl. xix.; Wald. in *Bl. B. Burm.* p. 74; Tweedd. *Ibis*, 1877, p. 299; *Hume & Dav. S. F.* vi. p. 152; *Hume, S. F.* viii. p. 88.

Description.—*Male and female.* Forehead and front of the head as far

back as the eyes golden yellow ; the lores, crown and central portion of the nape, the chin, throat and a spot on the side of the neck scarlet ; cheeks blue ; a streak over the eye black ; a patch at the angle of the nape yellow ; a broad band across the fore neck, bordering the scarlet of the throat, blue ; with these exceptions the whole plumage is green, dull beneath, very brilliant on the nape and upper neck, where the feathers are edged paler ; tail bluish underneath ; quills dark brown on the inner webs and on the inner portions of the outer webs ; the tertiaries wholly green.

Young birds have the blue cheeks and the red lores from an early age, and the remainder of the plumage green ; the throat becomes yellow, and red begins to appear on the crown ; after the throat has become entirely yellow it commences to change to red, and the other features of the adult plumage are then assumed ; the red spots on the neck are the last to make their appearance.

Legs and feet very pale bluish or horny green ; irides deep brown ; bill black ; orbital skin dark greenish or greyish brown. (*Davison.*)

Length 9 inches, tail 2·5, wing 4, tarsus 1, bill from gape 1·7. The female is of the same size.

It seems doubtful whether *C. humii* be distinct or not from the present species. I have not had the opportunity of judging for myself, and I therefore do not unite them.

The Gaudy Barbet occurs in Tenasserim from the extreme south up to Nwalabo mountain and Tavoy.

It extends down the Malay peninsula and is found in Sumatra. It is also said to occur in Borneo together with *C. humii*.

This species is found in the evergreen forests. Mr. Davison remarks :—
“This bird has a peculiar note, which might be very well syllablized by *tok-tok-tok—tok-tok-tok* uttered incessantly. In the forests where it does occur its note may be heard nearly all day, and nearly all night on a bright moonlight night ; but it is most noisy during the evening soon after dusk.”

Genus CYANOPS, *Bonap.*

514. CYANOPS HODGSONI.

THE LINEATED BARBET.

Megalæma hodgsoni, *Bonap. Consp. Av.* i. p. 144; *Wald. P. Z. S.* 1866, p. 540; *Marsh. Mon. Capit.* pl. xxxvi.; *Hume, Nests and Eggs*, p. 129; *id. S. F.* iii. p. 75; *Bl. & Wald. B. Burm.* p. 73; *Anders. Yunnan Exped.* p. 583; *Hume & Dav. S. F.* vi. p. 151; *Hume, S. F.* viii. p. 88; *Oates, S. F.* viii. p. 166; *Scully S. F.* viii. p. 251; *Bingham, S. F.* ix. p. 165. *Megalæma lineata*, *apud Jerd. B. Ind.* i. p. 309.

Description.—*Male and female.* Forehead, crown and nape brown, each feather tipped with whity brown, the longer feathers of the nape with streaks of the same; upper back green, each feather with a streak of whity brown; the upper plumage, including wing-coverts, tertiaries and tail, bright green; primaries and secondaries black, broadly edged with bright green, a few of the earlier primaries edged with light brown on the terminal halves; chin and throat white; sides of the head and of the neck, breast and abdomen coloured like the crown, the light streaks larger and occupying the centre of the feather; sides of the body, lower abdomen, vent, thighs and under tail-coverts light green.

Bill flesh-coloured, dusky at the edges and paler at the gape; mouth flesh-colour; iris brown; eyelids, orbital skin and legs bright yellow; claws horn-colour.

Length 11·3 inches, tail 3·5, wing 5·2, tarsus 1·1, bill from gape 1·7. The female is smaller.

I have not been able to examine any specimens of the Lineated Barbet from Java, and they may be distinct from the Himalayan birds. It is therefore advisable to keep them apart for the present and to use Bonaparte's name for the Burmese birds, which are undoubtedly identical with others from the Himalayas.

The Lineated Barbet is found abundantly in all the forests of British Burmah, except in the extreme south of Tenasserim, where Mr. Davison did not meet with it.

It extends on the east to Cochin China, where Dr. Tiraud states it is common; on the north, through the Indo-Burmese countries to India, where it occurs along the base of the Himalayas, both in the lower hills and in the plains. *C. lineata*, the Javan race, is met with in Java, and it is said to have been procured in Malacca; but this latter locality appears to be somewhat doubtful.

This Barbet frequents thick forests, and is not usually found in gardens

and clearings. Its loud note of "ko-poh" is uttered incessantly throughout the day, and is one of the most wearisome sounds the traveller in the jungle has to put up with. I have not taken the eggs of this species, but in May I have found the nest-holes with young birds.

515. CYANOPS ASIATICA.

THE BLUE-FACED BARBET.

Trogon asiaticus, *Lath. Ind. Orn.* i. p. 201. *Cyanops asiatica*, *Jerd. B. Ind.* i. p. 313; *Hume, Nests and Eggs*, p. 130; *id. S. F.* iii. p. 77. *Megalæna asiatica*, *Marsh. Mon. Capit.* pl. xxix.; *Bl. B. Burm.* p. 73; *Anders. Yunnan Exped.* p. 584; *Hume & Dav. S. F.* vi. p. 151; *Hume, S. F.* viii. p. 88; *Scully, S. F.* viii. p. 252.

Description.—*Male and female.* Chin, throat, cheeks, ear-coverts and a supercilium blue; another supercilium, superior to this, and a band across the crown black; the forehead and crown, a spot at the base of the lower mandible on each side, so small as to be barely visible in some specimens, and a large spot on each side the base of the throat crimson; the whole plumage green, bright above, yellower beneath; quills dark brown, edged with bluish green; the underside of the tail blue.

Iris reddish hazel; edges of the eyelids dusky orange; eyelids themselves orange-brown; upper mandible greenish yellow at base and dark brown on the remainder; lower mandible greenish yellow; mouth dusky blue; legs pale green; claws greenish horn.

Length 9·2 inches, tail 3, wing 4, tarsus 1, bill from gape 1·5. The female is a trifle smaller.

The Blue-faced Barbet, as far as I have observed it in Pegu, appears to be confined to the dense evergreen forests on the eastern side of the Pegu hills. Capt. Wardlaw Ramsay, however, met with it at Tonghoo and on the hills further east, where it was common. In Tenasserim Mr. Davison observed it in the northern portion of the Division only, about Kollidoo and Pahpoon and nowhere else. With regard to Arrakan, Mr. Blyth records it from that Division, and it is no doubt common.

It ranges through the Indo-Burmese countries into India, and is found in Bengal and along the sub-Himalayan region as far as the Jumna river.

This Barbet is entirely confined to dense forests, where it keeps to the top of the highest trees, uttering all day its cry of "kooteruk, kooteruk," It breeds in April; but I have not been able to find its eggs

516. CYANOPS DAVISONI.

DAVISON'S BARBET.

Megalaima davisoni, *Hume*, *S. F.* v. p. 108; *Hume & Dav. S. F.* vi. p. 151; *Hume*, *S. F.* viii. p. 88; *Bingham*, *S. F.* ix. p. 165.

Description.—*Male and female.* “Precisely similar to *C. asiatica*, but somewhat smaller; entirely wants the black crown-band and to a great extent the narrow yellowish line preceding it, and has these replaced by a broader turquoise-blue band, thus diminishing the depth of the occipital red patch; pectoral red patches rather larger.

“Length 8·5 inches, wing 3·9, tail 2·8, tarsus ‘97.” (*Hume*.)

I have not had the opportunity of examining a specimen of this bird.

Davison's Barbet is met with at the bases of the lower ranges of hills below Mooleyit in Tenasserim, and also in the Thoungyeen valley, where Capt. Bingham found it common. It is not yet known to occur elsewhere.

Mr. Davison remarks that the note of this species is precisely similar to that of *C. asiatica*; and Capt. Bingham discovered two nest-holes in March, each with two eggs.

517. CYANOPS INCOGNITA.

HUME'S BARBET.

Megalaima incognita, *Hume*, *S. F.* ii. pp. 442, 486; *Wald. in Bl. B. Burm.* p. 74; *Hume & Dav. S. F.* vi. pp. 151, 501; *Hume*, *S. F.* viii. p. 88; *Bingham*, *S. F.* ix. p. 166.

Description.—*Male and female.* “Green; lores and a very narrow frontal band, a small patch on the nape, and two small pectoral patches dark crimson; chin, throat, cheeks, ear-coverts, forehead, stripe over eye, tinged with turquoise-blue. A narrow ring of tiny bright yellow feathers surrounds the eye.” (*Hume*.)

Male: upper mandible, eyelids and tip of lower mandible dusky horny; remainder of bill paler; legs and feet grass-green; irides nut-brown. *Female*: lower mandible and base of upper mandible pale horny blue; rest of bill black; legs and feet dirty bluish green. (*Davison*.)

Length 8·6 to 9 inches, tail 2·4 to 2·5, wing 3·9, tarsus 1 to 1·1, bill from gape 1·4 to 1·46. (*Davison*.)

This is another Barbet I have not been able to examine for myself, as

there is not, I believe, a specimen in any English museum. It appears to belong to this genus.

In addition to the above diagnosis, Mr. Hume states that the bright crimson lores and frontal band, the yellow eye-ring, and the long and extremely strongly marked black superciliary and gape-stripes serve to distinguish this species at a glance.

Hume's Barbet occurs in Tenasserim about Amherst and Yea, and in the vicinity of Tavoy; and Capt. Bingham records it as common in the Thoungyeen valley at certain seasons.

Mr. Davison remarks that the note and habits of this species are similar to those of *C. asiatica*. At Tavoy it was met with in thin tree-jungle.

518. CYANOPS RAMSAYI.

RAMSAY'S BARBET.

Megalæma ramsayi, Wald. Ann. Nat. Hist. ser. 4, xv. p. 400; *id.* in Bl. B. Burm. p. 74; Hume, S. F. iii. p. 402; Wardlaw Ramsay, Ibis, 1877, p. 457; Hume & Dav. S. F. vi. p. 152; Hume, S. F. viii. p. 88.

Description.—*Male and female.* Forehead and a patch on the nape crimson; crown shining yellow; lores black; a broad supercilium and a patch under the eye with mixed streaks of grey and black; ear-coverts silvery grey; a patch at the gape yellow tinged with red; chin and upper throat golden yellow; lower throat, fore neck and under ear-coverts dull grey; a thin band of bright greenish blue joining the ear-coverts, runs over the back of the neck, bounding the bright colours of the head; a patch of black between the supercilium and the red nape-spot; remainder of the plumage green, yellower below; lesser wing-coverts deep purplish blue, which colour passes on to the edge of the wing and the outer webs of some of the primaries; quills dark brown on the inner webs, green on the outer; under wing-coverts whitish; tail uniform dark green.

Bill horn-brown, dirty white at the gape and sides; orbits dark brown; iris nut-brown; legs and feet pale greenish plumbeous; claws horny. (Bingham, MS.)

Length 9·2 inches, tail 2·5, wing 4, tarsus 1, bill from gape 1·4. The female is of the same size.

This species is very close to *C. franklinii* from India, and differs from it only in having the supercilium mixed with grey instead of having it pure black.

Ramsay's Barbet was discovered by Capt. Wardlaw Ramsay in Karennee, and he subsequently found it common in the hills east of Tonghoo.

Mr. Davison met with it on the higher slopes of Mooleyit mountain, and Capt. Bingham in the Thoungyeen valley. It appears to be most common at elevations of from 3000 to 5000 feet.

Nothing particular is recorded of its habits.

Mr. Blyth notes *C. franklinii* from Tenasserim on the authority of Col. Tickell; but I have no doubt the birds so designated were *C. ramsayi*, those naturalists not deeming the slight differences in the two birds of much importance.

Other species of this genus are :—*C. phæostriata*, described from Cochin China some fifty years ago, and not again rediscovered; it somewhat resembles *C. hodgsoni*, but has a supercilium and the cheeks bright green. The next three species occur in the Malayan peninsula, and may ultimately be found to extend to Tenasserim: *C. versicolor*, a very brightly plumaged bird, the head being of many colours, with the whole throat bright blue; *C. chrysopogon*, also of gaudy plumage, with bright yellow moustachial bands; and *C. henricii*, with the forehead and sides of the crown bright golden yellow.

Genus XANTHOLÆMA, Bonap.

519. XANTHOLÆMA HÆMACEPHALA.

THE CRIMSON-GORGETED BARBET.

Bucco hæmacephalus, *P. L. S. Müll. Natursyst. Suppl.* p. 88; **Bucco indicus**, *Lath. Ind. Orn.* i. p. 205. **Xantholæma indica**, *Jerd. B. Ind.* i. p. 315; *Wald. Ibis*, 1871, p. 162. **Xantholæma hæmacephala**, *Marsh. Mon. Capit.* pl. xlii.; *Wald. Trans. Zool. Soc.* ix. p. 156; *Hume, Nests and Eggs*, p. 131; *id. S. F.* iii. p. 77; *Armstrong, S. F.* iv. p. 311; *Oates, S. F.* v. p. 144; *Hume & Dav. S. F.* vi. p. 155; *Legge, Birds Ceylon*, p. 218; *Hume, S. F.* viii. p. 88; *Scully, S. F.* viii. p. 253; *Bingham, S. F.* ix. p. 167; *Kelham, Ibis*, 1881, p. 390. **Megalæma hæmacephala**, *Bl. B. Burm.* p. 74.

Description.—*Male and female.* Chin, throat, a spot over the eye and one under it yellow; forehead and crown back to the eyes and a band across the breast crimson; cheeks, ear-coverts and a band over the crown black; sides of the neck greenish slate-colour; upper plumage, including the wing-coverts and tertiaries, green, the nape tinged with blue; primaries and secondaries black, the outer webs edged with green; tail green, the inner webs edged with brown; lower plumage dull yellow, broadly streaked with green, and with a patch of deep yellow on the breast next the crimson.

Bill black, bluish at the gape and base of lower mandible mouth

bluish; eyelids red, the edges brown; iris brown; legs coral-red; claws dark horn.

Length 6·8 inches, tail 1·8, wing 3·4, tarsus ·8, bill from gape 1. The female is rather smaller.

The Crimson-gorgeted Barbet, or, as it is frequently called, the "Coppersmith," is found abundantly in every portion of the Province and in Karennee.

It is spread over the Indo-Burmese countries and the whole peninsula of India with Ceylon, and it occurs in Siam, Cochin China, the Malay peninsula, Sumatra and the Philippine Islands; it probably also inhabits Borneo.

The Coppersmith is a familiar well-known little bird, found mostly in open country and in gardens and compounds. It is also seen in all thick forests, but not so numerous as elsewhere. Its note, which somewhat resembles the sound caused by tapping a piece of metal with a hammer, is uttered throughout the day, the bird being generally perched on the topmost bough of a tree, and directing its voice in all directions by turning its head. It breeds in March and April, laying either two or three eggs in a hole of a tree, usually at no great height from the ground. From April to the end of the rainy season this Barbet becomes comparatively silent.

520. XANTHOLÆMA CYANOTIS.

THE BLUE-EARED BARBET.

Bucco cyanotis, *Bl. J. A. S. B.* xvi. p. 465. *Megalæma cyanotis*, *Marsh. Mon. Capit.* pl. xxxiii. fig. 3; *Bl. B. Burm.* p. 74; *Hume & Dav. S. F.* vi. p. 155; *Hume, S. F.* viii. p. 88; *Bingham, S. F.* ix. p. 166; *Oates, S. F.* x. p. 192. *Xantholæma cyanotis*, *Hume, S. F.* iii. p. 77.

Description.—*Male and female.* The forehead, a line over the eye, ear-coverts, chin and throat dull blue; the forward half of the crown and a patch at the base of the lower mandible black tinged with green; a patch under the eye and a broad streak under and over the ear-coverts red; remainder of the plumage green, darker above and yellower below; primaries and secondaries dark brown edged with green; there is a tinge of blue on various parts of the body, especially the abdomen and tail.

Bill black; mouth bluish black; eyelids and naked skin of face blackish plumbeous; iris dark brown; legs dull greenish yellow; claws black.

Length 6·7 inches, tail 2·2, wing 3·2, tarsus ·8, bill from gape 1·05.

X. duvaucelii, from the Malay peninsula, is closely allied; it differs chiefly in wanting the blue ear-coverts.

The Blue-eared Barbet is found only in evergreen or other dense forests, and is consequently not universally distributed over the Province. I found it common on the eastern slopes of the Pegu hills from the frontier down to Rangoon, and it is especially abundant on the higher spurs. Capt. Wardlaw Ramsay procured it on the Karin hills; Mr. Davison observed it throughout Tenasserim, and Capt. Bingham in the Thoungyeen valley. Mr. Blyth states that it occurs in Arrakan.

It extends to the north to the hill-tracts of Eastern Bengal, Cachar and Tipperah, and to the south down to Tonga and Klang in the Malay peninsula; and Dr. Tiraud records it as common in Cochin China.

This small Barbet differs in no particular from the others, except in its note, which resembles the word "*koturr*" repeated incessantly. Capt. Bingham found the nest-hole in Tenasserim in February, containing two eggs.

Genus CALORHAMPHUS, *Less.*

521. CALORHAMPHUS HAYII.

THE BROWN BARBET.

Bucco hayii, Gray, *Zool. Misc.* p. 33. *Calorhamphus lathami*, *apud Marsh. Mon. Capit.* pl. lxxii. *Megalorhynchus hayi*, Wald. *Ibis*, 1871, p. 163. *Calorhamphus hayi*, Hume & Dav. *S. F.* vi. p. 149; Hume, *S. F.* viii. p. 88.

Description.—*Male and female.* The whole upper plumage dark brown; the feathers of the crown margined with rusty brown, those of the back, rump and upper tail-coverts margined with pale yellowish green; wing-coverts and quills dark brown, the margins paler; tail plain dark brown; sides of the head rufous-brown; chin and throat paler rufous, obsoletely barred with pale yellowish; remainder of the lower plumage dirty yellowish white.

Bill in the male black, in the female reddish brown to a dirty orange or ochraceous brown; in both sexes the legs and feet are orange; the claws black; the irides dull red or brownish red, occasionally dark brown, with scarcely any perceptible red tinge; the orbital skin brown. (*Davison.*)

Length 7 inches, tail 2.1, wing 3.2, tarsus .85, bill from gape 1.2. The female is of about the same size.

The Brown Barbet occurs in the extreme south of Tenasserim at Banka-soon and Malewoon, where, however, according to Mr. Davison, it is excessively rare.

It ranges down the Malay peninsula to Sumatra.

This species appears to differ from the other Barbets in habits. Mr. Davison says :—"For a Barbet this species has a most extraordinary note, a low soft whistle. It is generally found in small parties of three or four, sometimes in pairs, and occasionally singly, hunting about the leaves and branches and trunks of trees, peering into every crevice and cranny in the bark, and clinging about in all sorts of positions far more like a Tit than a Barbet. Its food consists quite as much of insects as of fruits. It is a forest-bird."

Order V. PSITTACI.

Family PSITTACIDÆ.

Subfamily PALÆORNITHINÆ.

Genus PALÆORNIS, *Vigors*.

522. PALÆORNIS INDOBURMANICUS.

THE LARGE BURMESE PAROQUET.

Palæornis alexandri (L.), *Jerd. B. Ind.* i. p. 257 (part.); *Bl. & Wald. B. Burm.* p. 54. *Palæornis eupatrius* (L.), *Finsch, Die Papageien*, ii. p. 11 (part.). *Palæornis magnirostris* (Ball), *Hume, S. F.* iii. p. 55; *Armstrong, S. F.* iv. p. 307; *Oates, S. F.* v. p. 143; *Wardlaw Ramsay, Ibis*, 1877, p. 453; *Hume & Dav. S. F.* vi. p. 117. *Palæornis indoburmanicus*, *Hume, S. F.* vii. p. 458, viii. p. 86; *Bingham, S. F.* ix. p. 159; *Oates, S. F.* x. p. 189.

Description.—*Male.* Forehead, crown, lores and feathers round the eyes brilliant green; sides of the head green, tinged with yellow; chin and throat sparingly covered with black feathers; the extreme base of the throat yellowish; the black of the throat narrowly produced upwards on either side of the neck; a brilliant peach-rose collar round the back and sides of the neck; the general colour of the plumage green, duller and tinged with yellow below, most brilliant on the back and wings; the primaries and secondaries with the inner edges of the inner webs brown; wing-coverts green, with the concealed inner webs chiefly brown; the

median coverts nearest the body red, forming a most conspicuous spot ; central tail-feathers greenish at base, blue on the remainder and tipped yellowish ; the other feathers green on the outer web and yellow on the inner.

The *female* differs in wanting the black on the chin and throat and the stripe on the sides of the neck ; the peach-rose collar and the glaucous tinge on the nape are also wanting. The red patch on the wing is also smaller.

Iris bright yellow ; cere yellow ; bill bright red, the tip yellow ; eyelids pale pink, the edges orange ; legs orange-yellow. Female the same.

Length 22 inches, tail 13, wing 8·4, tarsus ·7, bill from gape 1·2. The female is rather smaller.

The Large Paroquets of India and Burmah have been subdivided into four species, each based on trivial differences in size and coloration. *P. eupatrius*, the smallest race, inhabits Ceylon ; *P. magnirostris*, the largest, is found in the Andaman Islands ; and *P. nipalensis*, an intermediate race, in Northern India. Typical examples of the Burmese race differ in having the base of the throat yellowish, the nape and sides of the head of the same colour as the crown, and the mandibular stripes narrow ; they are, moreover, to be recognized by their very large size, in which respect they equal *P. magnirostris*, but the bill is very much smaller than in that species. It seems very doubtful whether these races or species are worthy of retention ; but for the present it is convenient perhaps to keep the Burmese bird under Mr. Hume's name.

The Large Burmese Paroquet is found over a great portion of British Burmah, and is usually abundant ; but Mr. Davison did not observe it in Tenasserim south of Amherst, nor Capt. Bingham in the Thoungyeen valley.

To the east it extends to Cochin China, where Dr. Tiraud states that this race is common ; and to the north it is diffused over the Indo-Burmese countries, ranging into India as far as Sikhim.

This Paroquet occurs in small flocks, and is usually seen in plains and the outskirts of cultivation where large trees abound. It does not ascend the hills to any great height, nor is it to be met with in dense forests. Its cry is very loud. Like all the other Paroquets, it feeds on fruit and grain, and also at times eats buds. It breeds in January and February, excavating a hole for itself in the trunk or a large branch of some lofty tree, and laying therein three white eggs.

523. PALÆORNIS TORQUATUS.

THE ROSE-RINGED PAROQUET.

Psittacus torquatus, *Bodd. Tabl. Pl. Enl.* p. 32. *Palæornis torquatus*, *Jerd. B. Ind.* i. p. 257; *Finsch, Die Papageien*, ii. p. 17; *Hume, Nests and Eggs*, p. 116; *id. S. F.* ii. p. 13; *Wald. Ibis*, 1874, p. 282; *Bl. B. Burm.* p. 55; *Hume, S. F.* iii. p. 56; *Wardlaw Ramsay, Ibis*, 1877, p. 453; *Oates, S. F.* v. p. 144; *Legge, Birds Ceylon*, p. 171; *Hume & Dav. S. F.* vi. p. 118; *Hume, S. F.* viii. p. 86; *Scully, S. F.* viii. p. 240; *Oates, S. F.* x. p. 189.

Description.—*Male.* Forehead, crown, nape and sides of the head green, the hinder part of the head with a bluish tinge; a fine black line from the nostril to the eye; chin and throat black, produced upwards as a semi-collar on the sides of the neck; a pinkish-red collar encircling the whole neck except in front; remainder of the plumage green, darkest on the wings, paler and tinged with yellow on the lower plumage; central tail-feathers dull blue, tipped with yellowish; the others yellow on the inner webs and greenish on the outer; all the feathers tipped with yellow.

The *female* wants the black loreal line, and the black and pinkish-red collars as well as the black on the chin and throat are absent; the whole plumage is green, of the same tinge as in the male; an indistinct collar of emerald-green round the neck.

Bill red, brownish at tip; cere grey; legs ashy; iris pale yellow; edges of the eyelids pale orange; claws horn-colour. The female has the same colours.

Length 16·5 inches, tail 10, wing 6·8, tarsus 5·5, bill from gape 1·8. The female is a little smaller.

The Rose-ringed Paroquet is abundant over the greater part of Pegu; but Dr. Armstrong does not note it from the Irrawaddy Delta, and possibly it does not occur in that portion of the Division; it is, however, abundant near Rangoon. Capt. Wardlaw Ramsay met with it on the Karin hills east of Tonghoo, and states that it was rare in that part of the country. Mr. Davison and Capt. Bingham did not observe it in any part of Tenasserim, which is remarkable, for it extends to the east as far as Cochin China, where Dr. Tiraud states that it is quite common. I can find no instance of its occurring in Arrakan; but it is likely to be very abundant in the plains of that Division.

It extends through the Indo-Burmese countries, and is found over the whole peninsula of India and Ceylon. It is stated to have occurred in the Malay peninsula, but probably without foundation. A Paroquet which inhabits the greater part of the African continent is said to be identical with the present species; but I have not had an opportunity of testing the correctness of this assertion.

The Rose-ringed Paroquet is found in flocks of considerable size, mostly in the neighbourhood of cultivation, in clearings and on the outskirts of forests. It is more frequently caged by the Burmese than any other species of Paroquet.

It breeds in January and February in the holes of trees, and lays either four or five white eggs.

524. PALÆORNIS FINSCHII.

FINSCH'S PAROQUET.

Palæornis finschi, *Hume*, *S. F.* ii. p. 509; *Wald. in Bl. B. Burm.* p. 55; *Hume & Dav. S. F.* vi. p. 119; *Hume, S. F.* viii. p. 86; *Bingham, S. F.* ix. p. 160; *Oates, S. F.* x. p. 189.

Description.—*Male.* Forehead, crown, nape and sides of the head slaty blue; chin and throat black, produced as a half-collar up the sides of the neck; general colour of the plumage green, yellower below; the portion of the neck next the slaty blue of the head tinged with verdigris; median wing-coverts with a patch of red, forming a conspicuous spot; tertiaries wholly green; primaries and secondaries with the outer webs dark green, edged very narrowly with yellowish, the inner webs brown; under wing-coverts bluish green; basal half of central tail-feathers lavender-blue, the edges at the extreme base green; terminal half pale lilac tipped with yellow; the other tail-feathers light green on the outer webs, yellow on the inner; the tips of both webs yellow.

I have not been able to examine a female of this species. Of the allied species, *P. schisticeps*, Dr. Jerdon says that in the female the wing-spot is barely indicated, and Mr. Hume that it is always absent. The sexes do not appear to differ in other respects.

The *young*, as in the allied species, probably have the black on the throat and collar wanting, and the head greenish.

Legs and feet pale dirty green; upper mandible orange-vermilion, tipped yellowish; lower mandible pale yellow; irides usually creamy white, but in some specimens grey, with a fine inner ring of golden yellow; in others pale brown, with an outer ring of white. (*Davison.*)

Length 16 to 18 inches, tail 9 to 12, wing 6, tarsus '6, bill from gape '8. The female is apparently smaller only in respect to total length and length of tail, the latter, according to Mr. Davison, measuring about 8'5.

Mr. Blyth (*B. Burm.* p. 55) records *P. schisticeps* from the Arrakan hills. The nearly allied *P. finschii* had not at that time been discriminated,

and I think it open to doubt which of the two species occurs in Arrakan. In any case I do not think it necessary to include both these closely allied species in my work.

P. schisticeps is a larger bird, the wing being about 6·5; the tail-feathers are very broad, being about ·5 at the middle of the centre rectrices, whereas in *P. finschii* they are never more than ·3 in breadth, measured at the same place; and the coloration of the upper plumage is greener and less tinged with yellow.

Finsch's Paroquet has hitherto been procured only in Burmah. Mr. Davison met with it in the hills of the main Tenasserim range in the northern and central portions of the Division; Capt. Wardlaw Ramsay got it on the Tonghoo hills; and Capt. Bingham remarks that it is common in the Thoungyeen valley. The Paroquet which I found on the Pegu hills (S. F. iii. p. 56), and which was provisionally assigned by Mr. Hume to *P. schisticeps*, was probably this species; and one or both species occur in Arrakan.

Mr. Davison remarks:—"It occurs in small parties, frequenting the edges and thinner portions of the forest, and the banks of streams. Its voice is very similar to that of *P. schisticeps* of India. In its habits it much resembles other Paroquets. I found it feeding on the large red flowers of a silk-cotton tree (*Bombax*?) north of Palphoon, and about Myawadee on the large crimson flowers of a huge creeper."

The bird I met on the Pegu hills was very common, frequenting the higher trees on the ridges. Many young birds were about in the month of April.

525. PALÆORNIS FASCIATUS.

THE RED-BREASTED PAROQUET.

Psittacus fasciatus, *P. L. S. Müller, Natursyst. Suppl.* p. 74. *Psittacus vibrissa*, *Bodd. Tabl. Pl. Enl.* p. 30. *Palæornis melanorhynchus*, *Wagler, Mon. Psitt.* p. 511; *Finsch, Die Papageien*, ii. p. 70; *Wald. Ibis*, 1873, p. 297, 1874, p. 290; *Bl. B. Burm.* p. 57; *Armstrong, S. F.* iv. p. 308; *Hume, S. F.* v. p. 21; *Wardlaw Ramsay, Ibis*, 1877, p. 453; *Hume & Dav. S. F.* vi. p. 120. *Palæornis javanicus* (*Osbeck*), *apud Jerd. B. Ind.* i. p. 262. *Palæornis lathamii*, *Finsch, Die Papageien*, ii. p. 66. *Palæornis fasciatus*, *Hume, Nests and Eggs*, p. 118; *id. S. F.* ii. p. 20, iii. p. 56, vii. p. 163, viii. p. 86; *Scully, S. F.* viii. p. 243; *Bingham, S. F.* ix. p. 160; *Oates, S. F.* x. p. 190.

Description.—*Male.* A narrow band of black at the base of the upper mandible; forehead, crown, nape, cheeks and ear-coverts dull lilac; chin and upper throat nearly naked; on each side of these a very broad black patch reaching to beyond the ear-coverts; a collar occupying the hind neck, and extending down on each side to the end of the black patches,

emerald-green ; back, rump, scapulars and upper tail-coverts dark green ; central tail-feathers blue, edged with green near the base and tipped yellowish ; the others more or less blue on the outer webs and green on the inner ; lesser wing-coverts and the outer ones of the other series dusky green ; the inner median coverts rather bright golden yellow, forming a large conspicuous patch ; the inner greater coverts green, tinged with yellow on the outer webs ; quills green on the outer webs, brown on the inner ; under wing-coverts green ; lower throat, breast and upper abdomen vinaceous red ; remainder of lower plumage green tinged with blue.

The *female* differs only in having the head tinged with blue, and in having the vinaceous red of the breast produced up the sides of the neck between the lilac-blue of the head and the emerald-green of the neck.

Young birds have no red on the lower plumage.

Upper mandible coral-red, the tip yellow ; lower mandible black ; the cere dusky green ; eyelids pale greenish ; iris light yellow ; legs dusky greenish yellow ; claws dark horn. The female has the upper mandible black, with the tip yellow ; base of lower mandible pale orange-brown. Young birds appear to have both mandibles black.

Length very variable, and reaches up to 17 inches in good specimens, tail up to 10, wing 6·4, tarsus ·5, bill from gape 1. The female is of about the same size.

An ally of this species, *P. alexandri*, occurs in Java ; it merely differs in both sexes having the whole bill red. *P. longicauda* is a very beautiful species from the Malay peninsula ; it has the crown a bright green, the moustachial streaks black, and the remainder of the head a beautiful rosy red.

The Red-breasted Paroquet is found over the whole of British Burmah, except on the very highest hills. The only portion where it is perhaps rare or absent altogether is the Thoungyeen valley in Tenasserim, where Capt. Bingham states that he has not observed it.

It is found, according to Dr. Tiraud, in Cochin China ; in Mr. Seebohm's collection are specimens collected by Mr. Swinhoe in Hainan ; and Count Salvadori gives it from Malacca.

It extends through the Indo-Burmese countries into India, where it is found in Eastern Bengal and along the Himalayas as far as Kumaon.

This Paroquet is found in well-wooded portions of the country usually in small flocks, but when the paddy is ripe in immense numbers. They descend on the fields and do a vast amount of injury, cutting the stems of the rice with their bills, and then eating the half-ripened grains. During the middle of the day they sit on dead trees in clearings, uttering a variety of musical notes. Capt. Bingham found the nest in Tenasserim in February.

526. *PALÆORNIS CYANOCEPHALUS*.

THE BURMESE ROSE-HEADED PAROQUET.

Psittacus cyanocephalus, Linn. *Syst. Nat.* i. p. 141. *Psittacus rosa*, Bodd. *Tabl. Pl. Col.* p. 53. *Psittacus bengalensis*, Gm. *Syst. Nat.* i. p. 325. *Palæornis rosa*, Jerd. *B. Ind.* i. p. 259 (part.). *Palæornis cyanocephalus*, Finsch, *Die Papageien*, ii. p. 40 (part.); Wald. *Ibis*, 1874, p. 284; Bl. & Wald. *B. Burm.* p. 55; Hume & Dav. *S. F.* vi. p. 118; Hume, *S. F.* viii. p. 86; Bingham, *S. F.* ix. p. 161. *Palæornis bengalensis*, Hume, *S. F.* ii. p. 16, iii. p. 56; Armstrong, *S. F.* iv. p. 308; Oates, *S. F.* vii. p. 46.

Description.—*Male*. Forehead, cheeks and ear-coverts rosy pink, changing to bluish on the crown and nape; two broad black stripes starting from the gape, passing under the cheeks, covering the whole throat and continued in a very narrow form round the neck; general colour of plumage green, tinged with yellow on the neck and lower plumage, most intense on the wings; a patch of deep maroon on the median coverts; quills dusky on the inner webs and on the outer web of the first primary; under wing-coverts bright green; centre tail-feathers blue, tipped with yellow; the others green on the outer webs, yellowish on the inner and all tipped with brighter yellow.

The *female* has the whole head plum-blue; there is no black on the throat, nor any black collar, but merely a little dusky brown along the sides of the chin; the fore neck is yellowish, contrasting with the breast; the maroon wing-spot is rather less developed than in the male, but is always conspicuous.

The *young* are like the female, but entirely want the wing-spot.

Cere pale bluish; upper mandible orange-yellow; lower mandible black; eyelids grey; iris yellow; legs grey; claws horn-colour.

Length 13·5 inches, tail 8, wing 5·5, tarsus ·5, bill from gape ·65. The female is not appreciably smaller, but the tail is seldom so long as in the male.

This species is very close to its Indian ally, *P. purpureus*. This latter differs principally in having the under wing-coverts blue, not green, and in the female wanting (*fide* Mr. Hume) the maroon wing-spot of the male.

The Burmese Rose-headed Paroquet is found abundantly over all the plains of the Province, except perhaps in the extreme south of Tenasserim, where Mr. Davison did not observe it.

It extends to the east to Cochin China, where it appears to be common. It ranges through the Indo-Burmese countries into India, where it occurs in Bengal and along the lower ranges of the Himalayas as far as Eastern Nipal.

This common Paroquet frequents cultivation and the outskirts of forest and clearings. It is usually seen in large flocks and, like most other

Paroquets, it consumes large quantities of grain. It has a musical note, and is a very favourite bird with the natives. I have found the eggs in February and March in Pegu, deposited in the holes of trees at no great height from the ground; they are usually four in number, and pure white.

Subfamily LORIINÆ.

Genus LORICULUS, *Blyth*.

527. LORICULUS VERNALIS.

THE INDIAN LORIQUET.

Psittacus vernalis, *Sparrm. Mus. Carls.* ii. no. 29. *Loriculus vernalis*, *Jerd. B. Ind.* i. p. 265; *Wald. P. Z. S.* 1866, p. 538; *Hume, Nests and Eggs*, p. 119; *Hume, S. F.* ii. p. 185, iii. p. 57; *Bl. B. Burm.* p. 58; *Armstrong, S. F.* iv. p. 309; *Hume & Dav. S. F.* vi. p. 120; *Hume, S. F.* viii. p. 87; *Bingham, S. F.* ix. p. 161; *Oates, S. F.* x. p. 190. *Coryllis vernalis*, *Finsch, Die Papageien*, ii. p. 721.

Description.—*Male*. The whole head shining green; a patch of blue on the throat; rump and upper tail-coverts brilliant crimson; back green, with a yellowish tinge; scapulars, coverts and tertiaries dark green; quills green, tinged with blue on the outer webs, brown on the inner webs; underside of wings blue; under wing-coverts shining green; tail bluish green, tipped yellowish; under plumage green, tinged a good deal with yellow on the breast.

The *female* differs in having the green on the head less brilliant and no blue on the throat.

Iris pale yellowish white; eyelids yellowish; bill dull coral-red, yellow at tip; cere red; legs pale orange; claws pinkish horn.

Length 5·5 inches, tail 1·9, wing 3·5, tarsus ·4, bill from gape ·45. The female is of about the same size.

L. indicus, from Ceylon, differs in having the crown deep red; *L. galgulus*, from the Malay peninsula, has a blue patch on the crown and a red one on the throat.

The Indian Loriquet is found over the whole of British Burmah quite down to the southern end of Tenasserim; it extends down the Malay peninsula at least as far as Tonka.

To the north it extends through the Indo-Burmese countries to the Himalayas, along the foot of which range it is found as far as Sikhim. It has been recorded from the Deccan, the Palani hills, Travancore and Khandala, and also from the Andaman Islands.

This pretty Loriquet is a forest-loving bird, seldom being found in the

open, except in thick groves and orchards. It associates in small flocks, and is remarkable for its rapid flight. It feeds on small fruits and flower-buds, and probably on grain, but I have never detected them in paddy-fields.

They bear confinement well, and are more frequently caged than any other species of Parrot. When sleeping, they hang from their perch head downwards.

The eggs, usually three to five in number, are deposited in the hole of a tree or of a branch at a considerable height from the ground. Capt. Bingham found the nest in Tenasserim in February.

Subfamily PSITTACINÆ.

Genus PSITTINUS, Bl.

528. PSITTINUS INCERTUS.

THE MALAYAN PARROT.

Psittacus incertus, Shaw, *Nat. Misc.* xviii. pl. 769. *Psittacus malaccensis*, Lath. *Ind. Orn.* i. p. 130; *Psittacula incerta*, Finsch, *Die Papageien*, ii. p. 612. *Psittinus incertus*, Salvad. *Ucc. Born.* p. 25; Bl. & Wald. *B. Burm.* p. 58; Tweed. *Ibis*, 1877, p. 292; Hume & Dav. *S. F.* vi. pp. 120, 500; Hume, *S. F.* viii. p. 87.

Description.—*Male.* Forehead, crown and nape, rump and upper tail-coverts violet-blue, duller on the nape; sides of the head and cheeks dull brownish blue; back and scapulars blackish brown, the edges of the feathers paler; a patch of deep crimson on the lesser wing-coverts; all the other coverts and tertiaries green, edged with yellow; primary-coverts blue; primaries and secondaries brown on the inner webs, green on the outer ones and tips; central tail-feathers green, the others yellow; under plumage dull sordid yellow; the centre of the abdomen blue; the thighs and under tail-coverts green tipped with blue; under wing-coverts and axillaries bright crimson.

The *female* has the forehead and crown greenish brown, the feathers fringed with rufous; back and scapulars green, edged paler; rump blue, fringed with green; upper tail-coverts green; lores and sides of the head yellowish brown, with dark shafts; the whole under plumage green; wings and tail as in the male. Both the male and female vary a good deal in coloration in minor details; the above description will, however, always enable the birds to be identified.

Young birds have the head green, the blue on the rump reduced in extent, and there is hardly a trace of the wing-spot.

In the adult males the upper mandible is orange-vermilion; the lower mandible is dusky or dull reddish brown, or sometimes pale horny streaked with dusky; the legs and feet are pale dirty green; the eyelids and cere greenish brown or dusky green; the irides creamy white. (*Davison*.)

Length 7·5 inches, tail 2, wing 4·8, tarsus ·5, bill from gape ·75. The female is of the same size.

The Malayan Parrot occurs in Tenasserim from the south up to Tavoy and Nwalabo mountain, where Mr. Davison found it abundant.

It extends to Cochin China and down the Malay peninsula to Singapore; it is also found in Sumatra, Bangka and Borneo.

This small Parrot, according to Mr. Davison, is a migratory species in Tenasserim, arriving in that Division about the beginning of April. He does not, however, state when they leave; and I think it is open to question whether this Parrot is really migratory in the ordinary sense of the word, or whether it merely moves about the country according as the flowers on which it appears to feed are abundant or otherwise. It goes about in small flocks, and has a sharp whistling note.

Order VI. STRIGES.

Family BUBONIDÆ.

Genus KETUPA, *Less*.

529. KETUPA CEYLONENSIS.

THE BROWN FISH-OWL.

Strix zeylonensis, *Gm. Syst. Nat.* i. p. 287. *Ketupa ceylonensis*, *Jerd. B. Ind* i. p. 133; *Hume, Rough Notes*, ii. p. 379; *id. S. F.* i. p. 431; *id. Nests and Eggs*, p. 64; *Ball, S. F.* ii. p. 382; *Sharpe, Cat. Birds B. Mus.* ii. p. 4; *Hume, S. F.* iii. p. 38; *Bl. B. Burm.* p. 66; *Armstrong, S. F.* iv. p. 300; *David et Oust. Ois. Chine*, p. 40; *Legge, Birds Ceylon*, p. 127; *Hume & Dav. S. F.* vi. p. 33; *Oates, S. F.* vii. p. 45; *Hume, S. F.* viii. p. 83.

Description.—*Male and female*. The whole upper plumage buffy brown, each feather with a broad black streak down the centre; the feathers of

the lower back and rump with narrow shaft-lines; lower plumage fulvous, each feather with a rather broad black shaft-line, and the whole closely cross-barred with fulvous-brown; a large patch of white on the throat; ear-tufts and ear-coverts buffy brown streaked with black; tail brown, with a few pale fulvous bands; quills brown, banded and mottled with fulvous.

Cere pale dusky green; bill dusky yellow-green, dark brown on the culmen; iris bright yellow; legs dusky yellow, turning darker on the toes; claws horn-colour.

Length 21·5 inches, tail 8·5, wing 16, tarsus 2·7, bill from gape 2, cere ·73. The above are the measurements of a fine female shot at Thayetmyo; the male is rather smaller.

The Owls of this genus are of very large size, and may be recognized by their naked tarsi and toes. The species of both *Ketupa* and the next genus *Bubo* are furnished with large ear-tufts.

The Brown Fish-Owl is common in most parts of the Province, from one end to the other, both in the hills and plains.

This Owl has a wide range, extending from China to Palestine. It is common in Cochin China, but it does not appear to be found in the Malay peninsula; it occurs all over India and in Ceylon.

It frequents well-wooded watered tracts, and feeds on fish and crabs. During the day it rests in mango and other trees which have dense foliage. Its cry resembles the word "*tee-dote*," by which name the Burmese know it, but they also apply the term to all the large horned Owls. I found a nest containing two young birds in March; it was placed in the fork of a large peepul tree only a few feet from the ground. The eggs of this Owl are white, as indeed are those of all the Owls.

530. KETUPA JAVANENSIS.

THE MALAYAN FISH-OWL.

Ketupa javanensis, Less. *Traité*, p. 114; Hume, *Rough Notes*, ii. p. 384; *Salvad. Ucc. Born.* p. 20; Sharpe, *Cat. Birds B. Mus.* ii. p. 8; *Bl. B. Burm.* p. 66; *Armstrong, S. F.* iv. p. 300; *Hume & Dav. S. F.* vi. p. 33; *Hume, S. F.* viii. p. 83; *Bingham, S. F.* ix. pp. 146, 471; *Kelham, Ibis*, 1881, p. 369.

Description.—*Male and female.* Similar to *K. ceylonensis*, but smaller and differing in the following particulars:—The whole plumage is deep fulvous both above and below, and there are no transverse striæ on the lower plumage; the black streaks on the upper plumage are broader and

each feather of the back and scapulars has large oval fulvous spots on both webs; the smaller size and the absence of cross bars below will always suffice to separate this species from the preceding.

Irides light yellow; cere dark slate-colour; bill dusky; legs and feet dusky yellowish brown. (*Armstrong*.)

Length 18 inches, tail 6·5, wing 13·5, tarsus 2·6, bill from gape 1·8. The female is of about the same size.

The Malayan Fish-Owl is stated by Mr. Blyth to occur in Arrakan, and he mentions Ramree Island as a locality whence he received a specimen. It is common in the Irrawaddy Delta, and I frequently observed a large Fish-Owl in the Pegu river which was probably this species. Mr. Davison met with it in Tenasserim from Amherst down to Malewoon, and Capt. Bingham notes that it is common in the Thoungyeen valley.

It is found in Siam, and ranges down the Malay peninsula to Singapore, and it occurs in Sumatra, Java and Borneo.

This Owl is chiefly found along the sea-coast and the course of large rivers. According to Mr. Davison it feeds chiefly on large insects, and has a soft low whistling note. It probably eats fish and crabs like *K. ceylonensis*. Capt. Bingham found the nest in Tenasserim in February with a single egg; it was placed in the fork of a large peepul tree.

Genus BUBO, *Cuvier*.

531. BUBO BENGALENSIS.

THE ROCK HORNED OWL.

Otus bengalensis, *Frankl. P. Z. S.* 1831, p. 115. *Urrua bengalensis*, *Jerd. B. Ind.* i. p. 128. *Ascalaphia bengalensis*, *Hume, Rough Notes*, ii. p. 366; *id. Nests and Eggs*, p. 62; *Bl. B. Burm.* p. 65. *Bubo bengalensis*, *Sharpe, Cat. Birds B. Mus.* ii. p. 25; *Hume, S. F.* viii. p. 83.

Description.—*Male and female*. Forehead black stippled with fulvous; crown, nape and upper neck rich fulvous, each feather broadly streaked with black; back, rump, upper tail-coverts, scapulars, tertiaries and wing-coverts brownish black, mottled and otherwise marked with fulvous and white; quills rich fulvous barred with brown; central tail-feathers brown, irregularly barred with fulvous-white; the others fulvous barred with brown; ear-tufts black margined with fulvous; disk whitish in front with the shafts black; ruff blackish edged with fulvous; chin and throat whitish; fore neck and breast fulvous, broadly streaked with black; remainder of lower plumage fulvous, narrowly cross-barred with brown,

the thighs and long feathers of the flanks almost unmarked, some of the feathers of the upper abdomen and sides of the body streaked down the shaft.

Iris orange-yellow; bill horny black; visible portion of toes greyish horny; claws blackish.

Length 22 inches, tail 9, wing 15, tarsus 3, bill from gape 1.7. The female is of about the same size.

The Rock Horned Owl is said by Mr. Blyth to occur in Arrakan. I have not heard of its occurrence elsewhere in the Province.

It occurs over the whole peninsula of India down to the extreme south and westwards as far as Afghanistan. It will probably be met with in the Indo-Burmese countries.

The four Burmese Owls of this genus are birds of very large size, with long ear-tufts and with the whole of the tarsus and toes feathered. They are not likely to be confounded one with the other, each having a very distinct style of coloration.

This species affects by preference rocky hills and ravines in well-wooded localities, and feeds, as indeed do all the larger Owls, on rats, snakes, crabs, and large insects. In India this Owl breeds from February to April, laying four white eggs on the bare soil in holes of river-banks and cliffs; and sometimes it appears to deposit its eggs on the level ground under a bush. The cry of this bird, according to Dr. Jerdon, is a loud solemn hoot.

532. BUBO COROMANDUS.

THE DUSKY HORNED OWL.

Strix coromanda, Lath. Ind. Orn. i. p. 53. *Urrua coromanda*, Jerd. B. Ind. i. p. 130; *David et Oust. Ois. Chine*, p. 40. *Ascalaphia coromanda*, Hume, *Rough Notes*, ii. p. 371; *Bl. B. Burm.* p. 65. *Bubo coromandus*, Sharpe, *Cat. Birds B. Mus.* ii. p. 35; *Hume, S. F.* viii. p. 83.

Description.—*Male and female.* The whole upper plumage, scapulars, tertiaries and wing-coverts greyish brown, freckled with a lighter shade of the same, and each feather with a narrow dark brown shaft-stripe; quills greyish brown barred with dark brown; tail fulvous, broadly barred with brown and tipped whitish; ear-tufts nearly entirely dark brown, contrasting with the plumage of the head; sides of the head, disk, and the whole lower plumage greyish brown with a tinge of fulvous, each feather mottled with brown specks, which assume the shape of fine wavy irregular cross lines in places, and with a dark brown shaft-streak.

Iris yellow; bill greyish white with the tip horn-colour; claws blackish.

Length 23 inches, tail 9, wing 16, tarsus 2·3, bill from gape 1·7. The female is slightly larger.

The Dusky Horned Owl is another of the large Indian species which Mr. Blyth informs us occurs in Arrakan.

It is found over a considerable portion of Northern and Central India, and extends into Western China.

This Owl appears to frequent groves of trees and forest-jungle. It makes a nest of sticks in a large tree, or frequently usurps the nest of some other large bird, and lays as a rule two eggs.

533. BUBO NIPALENSIS.

THE FOREST HORNED OWL.

Bubo nipalensis, *Hodgs. As. Res.* xix. p. 172; *Sharpe, Cat. Birds B. Mus.* ii. p. 37; *Legge, Birds Ceylon*, p. 131; *Hume & Dav. S. F.* vi. p. 30; *Hume, S. F.* viii. p. 83. *Ptiloskelos amherstii*, *Tick. J. A. S. B.* xxviii. p. 448. *Huhua nipalensis*, *Jerd. B. Ind.* i. p. 131; *Hume, Rough Notes*, ii. p. 378; *id. S. F. i.* p. 431; *Bl. B. Burm.* p. 65.

Description.—*Male and female.* The whole upper plumage and wing-coverts dark brown, broadly barred and edged with fulvous; tail dark brown, barred and tipped with fulvous; quills dark brown, barred irregularly with greyish brown; ear-tufts blackish, barred on the edges with fulvous; disk more or less brownish; lower plumage pale fulvous, boldly barred with black; the terminal bar on each feather not reaching across and being triangular in shape.

Iris yellowish brown; bill olivaceous brown; cere olive; feet brownish; claws dark brownish horn. (*Legge.*)

Length 24 inches, tail 9, wing 17, tarsus 2·6, bill from gape 1·8. The female is considerably larger.

The Forest Horned Owl was obtained by Capt. Wardlaw Ramsay at Tonghoo; and some years ago Colonel Tickell procured a young bird on Mooleyit mountain in Tenasserim, which Mr. Blyth ascribes to this species.

This fine Owl is found over a great portion of India from the Himalayas down to Ceylon, and Colonel Godwin-Austen obtained it in Assam. It is noteworthy that Dr. Anderson records from Bhamo a species which he identifies with *Bubo ignavus*; and this bird is therefore not unlikely to be found in British Burmah as a straggler. It may be recognized by its

toes being very thickly feathered, much more so than in any of the four species of *Bubo* here treated of.

This Owl frequents deep forests, and is said not to be so nocturnal in its habits as the other Horned Owls.

534. BUBO ORIENTALIS.

HORSFIELD'S HORNED OWL.

Strix orientalis, *Horsf. Trans. Linn. Soc.* xiii. p. 140. **Strix sumatrana**, *Raffl. Trans. Linn. Soc.* xiii. p. 279. **Bubo sumatranus**, *Salvad. Ucc. Born.* p. 19. **Bubo orientalis**, *Sharpe, Cat. Birds B. Mus.* ii. p. 39; *Hume & Dav. S. F.* vi. p. 31; *Hume, S. F.* viii. p. 83.

Description.—*Male and female.* The whole upper plumage dark brown, narrowly and closely barred with rufous; quills brown, barred with paler brown; tail brown, all but the central feathers barred with whitish on the basal half of the inner webs, and with fulvous-brown on the other parts; the central feathers barred with fulvous-brown throughout; ear-tufts dark brown, some of the feathers unmarked, others barred with white; the whole lower plumage pale fulvous-white, closely barred across with irregular lines of brown.

Feet clear yellow or chrome-yellow; claws black or horny green, at base plumbeous; bill, cere and eyelids yellow, clear in the one specimen, chrome in the other; irides dark brown. (*Davison.*)

Length 18 inches, tail 6·5, wing 13·5, tarsus 2, bill from gape 1·8. The female is probably a little larger.

Horsfield's Horned Owl occurs in the extreme south of Tenasserim, where Mr. Davison procured one specimen.

It extends down the Malay peninsula, and is found in Sumatra, Java and Borneo. Mr. Sharpe is of opinion that the Javan and Sumatran birds are identical.

Nothing is recorded of the habits of this species.

The Owls of the next genus are of small size, of remarkably beautiful plumage, and furnished with ear-tufts.

Genus SCOPS, *Savigny*.

535. SCOPS PENNATUS.

THE INDIAN SCOPS-OWL.

Scops pennata, *Hodgs. J. A. S. B.* vi. p. 369 (part.). *Ephialtes pennatus*, *Jerd. B. Ind.* i. p. 136; *Hume, Rough Notes*, ii. p. 386. *Scops pennatus*, *Sharpe, Cat. Birds B. Mus.* ii. p. 53; *Hume, S. F.* iii. p. 38; *Hume & Dav. S. F.* vi. p. 34; *Cripps, S. F.* vii. p. 255; *Hume, S. F.* viii. p. 83; *Bingham, S. F.* ix. p. 147; *Oates, S. F.* x. p. 182. *Scops bakkamuna*, *apud Bl. B. Burm.* p. 66.

Description.—General colour of the upper plumage dark grey, closely vermiculated and tipped with brown, the feathers of the head with black streaks, those of the upper back with white patches near the tips; the scapulars chiefly white on the outer web and barred with black; the ear-tufts rich fulvous on their basal halves; the tail irregularly barred with pale fulvous and brown; the earlier primaries with white patches on the outer webs; sides of the neck variegated with black and fulvous; lower plumage a mixture of white, fulvous and black, each feather with a black shaft-stripe.

The above description is taken from a male shot at Pegu in November; another male, in December, is much variegated with white above, each feather having several marks on each web. They are obviously the same species. This bird appears to have a rufous phase, but I have never met with it in this plumage.

Iris bright yellow; feet brownish yellow; claws horny; bill above black, below greenish yellow. (*Cripps*.)

Length 8 inches, tail 2·8, wing 5·6, tarsus 1, bill from gape ·75. The female is larger.

This Scops-Owl may be distinguished from the next two by its small size, and by the absence of any well-marked collar on the hind neck and upper back; its plumage is generally grey, that of the other two most frequently bright rufous, and its legs are very slender.

The Indian Scops-Owl appears to be found over the whole Province. Mr. Blyth records it from Arrakan. Capt. Feilden procured it at Thayetmyo, and I observed it in Southern Pegu round about Kyeikpadein. Mr. Davison states that it is generally distributed throughout Tenasserim, and Capt. Bingham found it common in the Thoungyeen valley.

It extends through the Indo-Burmese countries into India, and is found over a great portion of that country.

The Scops-Owls frequent forests and groves of trees, are nocturnal in their habits, feed entirely on insects, and have a low sibilant note, constantly uttered during the breeding-season. They lay two or three eggs in the holes of trees.

536. SCOPS LETTIA.

THE NIPAL SCOPS-OWL.

Scops lettia, *Hodgs. As. Res.* xix. p. 176; *Hume, Nests and Eggs*, p. 167; *Sharpe, Cat. Birds B. Mus.* ii. p. 85; *Bl. & Wald. B. Burm.* p. 65; *Oates, S. F.* vii. p. 45; *Hume, S. F.* vii. p. 357, viii. p. 83; *Scully, S. F.* viii. p. 232; *Oates, S. F.* x. p. 183. **Ephialtes lempiji**, *apud Jerd. B. Ind.* i. p. 138. **Ephialtes lettia**, *Hume, Rough Notes*, ii. p. 393.

Description.—*Male and female.* General colour of the upper plumage rich fulvous, vermiculated and freckled with brown and black; the bases of the feathers on the upper back pure fulvous, forming a broad collar; forehead and sides of the crown pale creamy fulvous, almost unmarked; eyebrow rich chocolate-brown; chin and cheeks white; ruff fulvous, fringed with black; lower plumage fulvous, delicately stippled with brown, most of the feathers with black centres.

The above is the ordinary plumage of the Burmese bird; there is, however, another plumage, which is usually called the grey phase; it is not of very common occurrence. In this phase the bird is marked in much the same way as above described, but the brown marks on the plumage are replaced by a greyish brown, giving the whole bird a different aspect.

Bill pale green, the gape yellowish; cere dusky pink; iris dark brown; eyelids plumbeous, the edges dusky red; toes pale brown; claws pale horn-colour, the tips dark.

Length 9 inches, tail 3·1, wing 6·5, tarsus 1·2, bill from gape ·9. The female is rather larger.

This species and the next may be recognized by their general rufous or fulvous coloration, and by the presence of a broad pale half-collar round the hind neck; and whereas in *S. lempiji* the junction of the toes with the tarsus is bare, in *S. lettia* the junction is concealed by feathers.

The Nipal Scops-Owl is recorded from Arrakan by Mr. Blyth, and it appears to be common over the greater part of Pegu, for I found it abundantly near Kyeikpadein and the town of Pegu, and Capt. Wardlaw Ramsay procured it at Rangoon and on the Karin hills east of Tonghoo. The specimens sent to Mr. Hume from Thayetmyo by Capt. Feilden are stated (*S. F.* iii. p. 38) to belong to *S. lempiji*, but their dimensions are very large for this species.

This Owl appears to be found in Nipal and Sikhim, and probably in the Indo-Burmese countries.

This species was very common near my house at Kyeikpadein, making its appearance at sunset and retreating in the morning to the shelter of thick clumps of bamboo. I found its nest in March in a hole of a mango tree.

537. SCOPS LEMPIJI.

HORSFIELD'S SCOPS-OWL.

Strix lempiji, *Horsf. Trans. Linn. Soc.* xiii. p. 140. **Scops lempiji**, *Salvad. Ucc. Born.* p. 19; *Sharpe, Cat. Birds B. Mus.* ii. p. 91; *Hume, S. F.* iii. p. 38; *Hume & Dav. S. F.* vi. pp. 35, 497; *Hume, S. F.* viii. p. 83; *Bingham, S. F.* ix. p. 147; *Kelham, Ibis*, 1881, p. 370; *Hume, S. F.* x. p. 183 (note).

Description.—*Male and female.* Very similar in general appearance to *S. lettia* in the fulvous phase; but the fulvous throughout very much deeper and brighter; the black marks on the upper plumage much larger and more pronounced; size smaller.

This species, according to Mr. Sharpe, has also a brown phase, but never a grey phase like *S. lettia*.

This small Owl may be recognized from the preceding, to which it bears a close resemblance, by the intense rufous colour of its plumage and by the junction of the toes with the tarsus being bare of feathers.

Horsfield's Scops-Owl is sparingly distributed over Pegu and Tenasserim. From the former Division Mr. Hume records specimens from Rangoon and Thayetmyo, and in the latter Mr. Davison found it generally distributed in the better-wooded tracts. Capt. Bingham states that it is common in the Thoungyeen valley.

It extends down the Malay peninsula and is found in Sumatra, Bangka, Java and Borneo.

Capt. Bingham obtained the eggs of this species in Tenasserim in March.

538. SCOPS SAGITTATUS.

THE LARGE MALACCAN SCOPS-OWL.

Ephialtes sagittatus, *Cass. Journ. Acad. Philad.* ii. p. 96, pl. 12. **Scops sagittatus**, *Sharpe, Cat. Birds B. Mus.* ii. p. 98; *Oates, S. F.* v. p. 247; *Hume & Dav. S. F.* vi. p. 35; *Hume, S. F.* viii. p. 83.

Description.—*Male and female.* The whole upper plumage a rather rich chestnut; the wings barred on the inner webs with brown, and the tail irregularly banded with the same; each feather of the upper body-plumage with small arrow-head fulvous marks in the centre and some narrow wavy black lines across; the forehead for a depth of nearly an inch, a broad supercilium and the inner webs of most of the feathers of the ear-tufts white; the shafts of the feathers of the forehead nearly black; the tips of the tufts and the top of the head a darker chestnut

than the back and without any marks; the long feathers on the sides of the neck, indicating a ruff, whitish, broadly tipped with blackish; lower plumage light buff; the shafts of the feathers of the throat black and the webs vermiculated with brown; the breast with small dark-brown shaft-spots and narrow brown vermiculations; abdomen and vent distinctly spotted, not cross-barred; the outer webs of the scapulars fulvous-white, with some rather large black shaft-spots on the feathers.

Feet and claws bluish white; bill bluish white; cere pale bluish green irides deep brown. (*Davison.*)

Length 11·5 inches, tail 5, wing 7·2, tarsus 1·2, bill from gape ·9. The female is rather larger.

This species may be immediately recognized by its very large size, by its intense rufous or chestnut colour, by the absence of a collar on the hind neck and by its white bill.

The Large Malaccan Scops-Owl was obtained by my men at Malewoon in Tenasserim in February; and Mr. Davison procured it at Meetan on the slopes of Mooleyit mountain.

Elsewhere this rare Owl has hitherto only been procured at Malacca.

There are a vast number of Scops-Owls known from surrounding countries; but they are so difficult of identification that it would be of little use to refer to them in brief terms.

Genus CARINE, *Kaup.*

539. CARINE PULCHRA.

THE BURMESE SPOTTED OWLET.

Athene pulchra, *Hume, S. F.* i. p. 469; *id. S. F.* iii. p. 39; *Wald. in Bl. B. Burm.* p. 67. **Carine pulchra**, *Sharpe, Ibis*, 1875, p. 258; *id. Cat. Birds B. Mus.* ii. p. 140; *Anders. Yunnan Exped.* p. 576; *Hume, S. F.* viii. p. 84; *Oates, S. F.* x. p. 183.

Description.—*Male and female.* Whole upper plumage greyish brown, each feather with a more or less concealed white bar and two white subterminal spots; tail greyish brown, with five narrow white bands; quills earthy brown, with large white patches on both webs forming interrupted bands; lower plumage white, irregularly barred with brown; the thighs and under tail-coverts pure white; chin and throat white, continued as a broad band up the sides of the neck; facial disk, which is nearly obsolete, and sides of the head dark brown mottled with whitish.

Bill greenish, yellowish at tip; cere greenish brown; iris bright yellow; edges of the eyelids black; feet brownish green; claws horn-colour.

Length 8 inches, tail 3, wing 5·5, tarsus 1, bill from gape ·8. The female is of the same size as the male.

I retain this bird as distinct from *C. brama* with considerable doubt. As a rule, the Burmese birds are smaller than the Indian ones; but this distinction cannot always be maintained. Two birds which I measured at Thayetmyo had the wings 5·8 inches in length, and another one, now in the British Museum, has the wing 6·2. Indian specimens of *C. brama* with wings of less than this length are not uncommon. The differences, moreover, pointed out by Mr. Hume in the plumage of the two races are too subtle to be of any value. Mr. Hume, as quoted by Mr. Sharpe, says:—"No doubt the general character of the plumage is the same as in *C. brama*; but the spotting of the head is smaller and neater. The general colour of the upper surface is a darker and purer brown; the throat-band is more strongly marked. The tail exhibits five or six narrow transverse bands or traces of these, against four or five far broader and more distinctly marked bands in *C. brama*. The scapulars, too, seem to be generally less barred and more spotted than is usually the case in Indian specimens."

The Burmese Spotted Owlet occurs at Thayetmyo and Prome and between those two towns, and it does not appear to be found at a much greater distance than fifteen miles from the Irrawaddy.

Dr. Anderson procured it in Independent Burmah, and it does not, so far as is at present known, occur elsewhere.

This small Owlet is abundant to a degree in the Thayetmyo and Prome districts, inhabiting the holes of large trees and the roofs of zayats or resthouses, so common near villages. It may be heard at all hours of the day screeching and quarrelling with its neighbours in some old tamarind-tree, in the holes of which tree it probably deposits its eggs in March and April.

The Owls of this genus are of small size and the ear-tufts are absent.

Genus NINOX, *Hodgs.*

540. NINOX SCUTULATA.

THE BROWN HAWK-OWL.

Strix scutulata, *Raffl. Trans. Linn. Soc.* xiii. p. 280. **Ninox scutellatus** (*Raffl.*), *Jerd. B. Ind.* i. p. 147 (part.); *Armstrong, S. F.* iv. p. 303; *Hume, S. F.* iv. p. 373. **Ninox scutulata**, *Hume, Rough Notes*, ii. p. 420 (part.); *Sharpe, Cat. Birds B. Mus.* ii. p. 156; *Bl. & Wald. B. Burm.* p. 67; *Hume, S. F.* viii. p. 84; *Kelham, Ibis*, 1881, p. 371. **Ninox hirsutus** (*Temm.*), *Hume, S. F.* iii. p. 40. **Ninox burmanica**, *Hume, S. F.* iv. p. 285; *Hume & Dav. S. F.* vi. p. 40; *Hume, S. F.* viii. p. 84; *Bingham, S. F.* ix. p. 148; *Hume, S. F.* ix. p. 245. **Ninox innominata**, *Hume, S. F.* iv. p. 286, v. p. 16. **Ninox lugubris** (*Tick.*), *Anders. Yunnan Exped.* p. 577; *Oates, S. F.* x. p. 183.

Description.—*Male and female.* Forehead, lores and chin whitish, with black shafts; the whole upper plumage, wing-coverts and tertiaries dark chocolate-brown; the scapulars with large concealed white spots; primaries and secondaries dark brown, barred with white on the inner webs; some of the primaries edged with rufous; tail ashy brown, tipped paler and with five dark-brown bars across it; throat rufous streaked with brown; breast rufous-chocolate, each feather edged on the sides only with white; remainder of lower plumage rufous-chocolate barred with white; under tail-coverts nearly pure white; under wing-coverts and axillaries deep rufous, barred with paler rufous.

Iris bright yellow; eyelid plumbeous, the edges yellowish brown; cere dull green; bill bluish black; the culmen and tip of lower mandible yellowish green; feet pale yellow; claws dark horn.

Length 12·5 inches, tail 5·3, wing 8·5, tarsus 1·1, bill from gape 1. The female is of about the same size as the male.

The above description is taken from a Tenasserim bird, the race named *N. burmanica* by Mr. Hume. Birds from Pegu differ in being a lighter colour above and in having the quills more barred with white.

I am of opinion, however, that the birds are not divisible into two species, nor are they to be separated from the birds which inhabit China, the Malay peninsula and the Indo-Burmese countries; and I accordingly follow Mr. Sharpe in uniting them all under Raffles's name. *N. lugubris*, which, according to Mr. Sharpe, inhabits solely the Indian peninsula, is probably a recognizable species when typical specimens are examined; but there appear to be numerous intermediate examples which cannot be assigned with certainty either to one race or the other, and the advisability of maintaining two species seems open to doubt. The works above referred to contain every thing of importance that Mr. Sharpe and Mr. Hume have written on this difficult subject, and the reader who

wishes to investigate the history of these Hawk-Owls is referred to them for further information.

The Brown Hawk-Owl is found abundantly over the whole of British Burmah, both in the hills and plains.

It occurs throughout India, Ceylon, the Indo-Burmese countries, the Malay peninsula and islands, Cochin China, China and Japan.

This Hawk-Owl is found alike in forests and in spare jungle and gardens. It comes out about dusk and sits on the branches of dead trees, from which it sallies out to capture insects. Its note resembles the word *whoo-wuk* repeated several times.

Genus GLAUCIDIUM, *Boie*.

541. GLAUCIDIUM BRODIEI.

THE COLLARED PIGMY OWLET.

Noctua brodiei, *Burton*, *P. Z. S.* 1835, p. 152. *Glaucidium brodiei*, *Jerd. B. Ind.* i. p. 146; *Hume*, *Rough Notes*, ii. p. 417; *Sharpe*, *Cat. Birds B. Mus.* ii. p. 67; *Bl. B. Burm.* p. 67; *Hume & Dav. S. F.* vi. p. 39; *Hume*, *S. F.* viii. p. 84; *Bingham*, *S. F.* ix. p. 148. *Tænioptynx brodiei*, *Hume*, *Nests and Eggs*, p. 71. *Athene brodiei*, *David et Oust. Ois. Chine*, p. 38, pl. 5.

Description.—*Male and female.* Forehead, crown, nape, cheeks, ear-coverts, sides of neck and a band across the throat brown, narrowly barred with pale fulvous; chin, a stripe under the cheeks and ear-coverts and the whole throat white; a broad rufous collar round the hind neck, more or less mixed with blackish; remainder of upper plumage, wings and tail rufous-brown, barred with fulvous; a broad line from the throat down the abdomen to the vent pure white; remainder of lower plumage rich rufous, barred with fulvous.

In another phase the whole upper plumage is greyish brown, barred with white; the fulvous collar as described above; the outer webs of the scapulars largely marked with white; the lower plumage less rufous.

Cere, bill and feet yellowish green; iris bright yellow; claws horny. (*Bingham*, *MS.*)

Length 6·3 inches, tail 2·2, wing 3·4, tarsus ·8, bill from gape ·75. The female is larger than the male, the wing being 3·75 and the total length about 6·8.

The Collared Pigmy Owlet is found in Tenasserim from Tavoy northwards, and Capt. Bingham states that it is common in the Thoungyeen valley. I have never obtained it in Pegu; but I am under the impression that I have frequently heard the note of this small Owl near the town of Pegu

and on the Pegu hills. It was certainly the cry of a small Owl that I heard, but I was never able to identify it with any species known to me.

It has been known to occur in China, and it is found in the hill-tracts of Eastern Bengal and in the Himalayas.

This Owlet is a forest species, and is generally found in hilly country. Capt. Bingham likens its note to the words *whoo, whoo-hoo, whoo*. In the Himalayas it breeds in May and June in the hollows of trees, laying three eggs.

G. castanopterus, from Java, is stated to have been met with in Tenasserim by Dr. Helfer. If such a bird should be found in Burmah, Mr. Hume surmises that it will prove a distinct species. The Javan bird may be recognized by its barred plumage, deep chestnut back, scapulars, wings and tail, and by the abdomen being white streaked with chestnut. The wing measures nearly six inches in length.

G. radiatum, from the Indian peninsula, is stated by Col. Tickell to occur in Arrakan, Burmah and Tenasserim (Ibis, 1876, p. 343). Such a statement implies, I think, that this bird is distributed over the whole Province and is common. No one has, however, met with it in recent years, and it is possible that Col. Tickell mistook the bird for some other species. It is, however, not unlikely to be met with in Arrakan, and I therefore annex Dr. Jerdon's description*. Col. Tickell, in his MS. Ill. of Ind. Orn., states that these Owlets are common about Shwayghoon, Htyngbway and Myawadee in Tenasserim, amongst the trees scattered about clearings in the forest close to the towns.

* GLAUCIDIUM RADIATUM.

"Above brown, uniformly barred with close rays of rufescent whitish and dusky; wings more rufous, especially the primaries, and barred with dusky brown; some of the greater coverts and scapulars with white spots; beneath, throat white; the rest of the body barred transversely with dusky and whitish; under tail-coverts white; bill greenish horny; irides golden yellow; feet greenish horny, with dusky claws. Length 8 to 8.5 inches, wing 5, tail nearly 3, tarsus not quite 1.

"It inhabits the Himalayas and the Indian peninsula, and is said to occur in Arrakan, Burmah and Tenasserim. It is also recorded from the Malay peninsula."

542. GLAUCIDIUM CUCULOIDES.

THE BARRED OWLET.

Noctua cuculoides, Vigors, *P. Z. S.* 1831, p. 8. *Athene cuculoides*, Jerd. *B. Ind.* i. p. 145; Hume, *Rough Notes*, ii. p. 414; *id.* *Nests and Eggs*, p. 71; *id.* *S. F.* iii. p. 39; Wardlaw Ramsay, *Ibis*, 1877, p. 454. *Athene whiteleyi*, apud Bl. & Wald. *B. Burm.* p. 66. *Glaucidium cuculoides*, Sharpe, *Cat. Birds B. Mus.* ii. p. 219; Hume & Dav. *S. F.* vi. p. 37; Hume, *S. F.* viii. p. 84; Bingham, *S. F.* ix. p. 148; Oates, *S. F.* x. p. 183.

Description.—*Male and female.* The whole upper plumage and wings brown, closely barred all over with ochraceous; the outer webs of some of the scapulars and outermost wing-coverts with large patches of white; tail blackish, with six bars of white, one of which is concealed by the upper coverts; all the feathers of the tail also tipped white; ear-coverts, sides of the neck, a band across the throat and the whole breast similarly banded like the upper plumage; a broad moustachial band reaching to the end of the ear-coverts and a large patch on the fore neck white; centre of the abdomen, vent and under tail-coverts white; abdomen and flanks white, broadly streaked with rufous; front of the thighs rufous, barred with brown; axillaries and under wing-coverts pale buff, the latter with a few brown streaks.

Iris bright yellow; eyelids greenish plumbeous; cere brown; bill pale green, the tip of the upper mandible yellow; mouth flesh-colour; legs greenish yellow; claws brown.

Length 8·7 inches, tail 3·2, wing 5·8, tarsus 1, bill from gape ·9. The female is rather larger.

The Barred Owlet is spread abundantly over the whole Province, except in the extreme south of Tenasserim, where Mr. Davison did not observe it. Dr. Armstrong did not meet with it in the Irrawaddy Delta, and it may be absent from the parts he worked; but it is unlikely, as it abounds round Rangoon for many miles in all directions.

It is found along the Himalayas, and it probably occurs in the Indo-Burmese countries. Dr. Tiraud records it from Cochin China; but the species found in that country may be *G. whiteleyi*, a species which is considered doubtfully distinct from the present, and which is met with in China and Japan. *G. whiteleyi* is said to be larger, and to have seven bars across the tail instead of six.

This Owlet is found both in forests and in gardens, bamboo-groves and compounds. It is about a good deal during the day, and does not retire to the holes of trees till some time after sunrise. It has a peculiar gurgling cry, uttered both at night and during the day when disturbed. It breeds in the Himalayas from March to May, laying three or four eggs in the hole of a tree.

Genus ASIO, *Brisson*.

543. ASIO ACCIPITRINUS.

THE SHORT-EARED OWL.

Stryx accipitrina, *Pall. Reise Russ. Reichs*, i. p. 455. **Strix brachyotos**, *Forst. Phil. Trans.* lxii. p. 384; *Gm. Syst. Nat.* i. p. 289; *Seebohm, Brit. Birds*, i. p. 167. **Otus brachyotus**, *Jerd. B. Ind.* i. p. 126; *Hume, Rough Notes*, ii. p. 364; *David et Oust. Ois. Chine*, p. 41. **Ægoliu brachyotus**, *Bl. & Wald. B. Burm.* p. 66. **Asio accipitrinus**, *Sharpe, Cat. Birds B. Mus.* ii. p. 234; *Dresser, Birds Eur.* v. p. 257, pl.; *Wardlaw Ramsay, Ibis*, 1877, p. 454; *Hume & Dav. S. F.* vi. p. 30; *Cripps, S. F.* vii. p. 253; *Hume, S. F.* viii. p. 83; *Oates, S. F.* x. p. 182.

Description.—*Male and female.* The whole upper plumage and wing-coverts brown, each feather margined at the sides with tawny, more broadly so on the neck and back than elsewhere; tail light tawny, regularly banded with brown; the tawny interspaces on the central feathers also mottled with brown; quills bright tawny barred with brown; a black ring round the eye; disk dull tawny, streaked with black; lower plumage fulvous, streaked with dark brown, the streaks broadest on the throat and gradually diminishing in width; thighs and under tail-coverts without streaks; ear-tufts very short.

Bill and claws blackish; iris bright yellow.

Length 15 inches, tail 6·3, wing 12, tarsus 1·8, bill from gape 1·2. The female is a little larger.

The Short-eared Owl is stated by Mr. Blyth to occur in Arrakan; and Capt. Wardlaw Ramsay procured one specimen at Tonghoo in Pegu.

This species is found nearly over the whole world, except in very high latitudes; and it is absent, according to Mr. Sharpe, from West Africa, Australia and the greater portion of the islands of the Pacific Ocean. Mr. Seebohm met with it in Siberia in 67° N. lat.

This Owl is found in India principally in long grass, and it is only a winter visitor. It is very likely to be found commonly in some parts of British Burmah when plains of grass are beaten for game; and I am under the impression I have seen it more than once under these circumstances. It has a cry consisting of three hoots, and it lays its eggs on the bare ground. It does not, of course, breed in Burmah.

Genus SYRNIUM, *Savigny*.

544. SYRNIUM SINENSE.

THE MALAYAN WOOD-OWL.

Strix sinensis, *Lath. Ind. Orn. Suppl.* p. xvi. *Strix seloputo*, *Horsf. Trans. Linn. Soc.* xiii. p. 140. *Strix pagodarum*, *Temm. Pl. Col.* 230. *Bulaca sinensis*, *Hume, Rough Notes*, ii. p. 357. *Ciccaba seloputo*, *Salvad. Ucc. Born.* p. 21. *Syrnium sinense*, *Sharpe, Cat. Birds B. Mus.* ii. p. 261. *Syrnium seloputo*, *Bl. & Wald. B. Burm.* p. 67; *Hume, S. F.* iii. p. 37; *Hume & Dav. S. F.* vi. p. 28; *Oates, S. F.* vii. p. 45; *Hume, S. F.* viii. p. 83; *Bingham, S. F.* ix. p. 146; *Oates, S. F.* x. p. 182.

Description.—*Male and female.* Forehead, chin and facial disk rather bright ferruginous without marks; lower edge of disk whitish; a large patch on the throat pure white; the space between this patch and the chin ferruginous; ear-coverts black, barred slightly at the lower end with ferruginous; top of head and neck very dark chocolate-brown, each feather with two white spots on either web, the spots becoming larger as they recede from the front of the head; sides of the neck darker, the spots turning into bars; the back, scapulars, rump and upper wing-coverts chocolate-brown, paler than on the head; the back with large white bars; the lesser wing-coverts with a few white spots; the greater wing-coverts with large white spots on both webs; the rump barred with white; the scapulars with large bar-like drops of white, the exterior feathers, which are usually concealed, being almost entirely white with ferruginous brown bars; primary-coverts plain rufous-brown; the general colour of the wings much the same as that of the upper plumage, but duller; the primaries and secondaries barred with fulvous on both webs, except in the first four primaries, where the outer webs are barred with whitish; the tertiaries broadly barred with white, turning to rufous bars at the bases of the feathers; tail much the same tint as the back, the central rectrices very sparsely barred with whitish (probably disappearing with age), the others barred narrowly on the outer and broadly on the inner web with fulvescent white; all the rectrices tipped with dull white; the whole lower plumage with the under wing-coverts white, with numerous bars of dark brown; the bases of the feathers, which are very much decomposed and bright fulvous in colour, show through the plumage in patches; the bars on the thighs narrower and more numerous.

The *young bird* has the whole upper plumage white barred with chocolate-brown; tips to tail-feathers very white and broad; the whole lower plumage white, closely barred with brown; thighs plain fulvous-white; facial disk as in the adult.

Bill and cere dark horn-brown ; mouth flesh-colour ; iris dark brown ; edges of the eyelids pink ; toes brown ; claws dark horn.

Length 18·5 inches, tail 7·6, wing 14·4, tarsus 2·15, bill from gape 1·5. The female is very little larger.

The Malayan Wood-Owl is distributed over Pegu and Tenasserim. I found it common near Kyeikpadein and the town of Pegu, and I have seen many specimens that were killed near Rangoon. Capt. Feilden procured some Owls at Thayetmyo which were probably of this species. Mr. Davison procured it only in the extreme south of Tenasserim, but appears to have identified it from its cry in other parts of the Division ; and Capt. Bingham heard its note in the Thoungyeen valley.

It occurs in Siam and Cochin China, in the Malay peninsula and in Java. Count Salvadori gives it with doubt from Borneo.

This handsome Owl frequents evergreen forests and groves of trees near pagodas and ruined monasteries. It is strictly nocturnal in its habits, and feeds principally on large insects. During the day it roosts on a high branch well protected by leaves. Its cry consists of three or four hoots. I have never found the eggs, but I have taken the young birds in March and April. The eggs appear to be deposited in a roomy fork of some large tree at no great height from the ground, and are probably only two in number.

Col. Tickell, in his 'Illustrations of Indian Ornithology,' figures a young Owl which he identifies with *S. indranee*. He says :— "The individual from which the drawing was taken was brought to me a nestling and lived for about three weeks on small fish, when it gradually sickened and died, probably from want of the admixture of insect food. I have never seen any other specimen of this species, and it may be reckoned in Tenasserim a very rare bird. Its plumage approaches nearest to that of *S. indranee* as described by Jerdon, but it may possibly be an undescribed and distinct species."

The figure represents a bird with the whole head and lower plumage pure white ; the posterior part of the facial disk pale chestnut bordered by a semicircle of black feathers ; the upper plumage chestnut, barred with black and whitish.

As figured it is certainly not the nestling of *S. seloputo*, with which I am well acquainted, but it is difficult to say of what species it is the young ; and under these circumstances I think it advisable not to admit *S. indranee* into the Burmese list till there is further evidence of its occurrence in the province.

Genus PHODILUS, *I. G. St.-Hilaire*.

545. PHODILUS BADIUS.

THE BAY OWL.

Strix badia, *Horsf. Trans. Linn. Soc.* xiii. p. 139. **Phodilus badius**, *Jerd. B. Ind.* i. p. 119; *Hume, Rough Notes*, ii. p. 346; *Salvad. Ucc. Born.* p. 21; *Sharpe, Cat. Birds B. Mus.* ii. p. 309; *Bl. & Wald. B. Burm.* p. 67; *Hume & Dav. S. F.* vi. p. 27; *Hume, S. F.* viii. p. 83; *Oates, S. F.* x. p. 181. **Phodilus** ? *nipalensis* (*G. R. Gray*), *Hume, S. F.* iii. p. 37.

Description.—*Male and female.* Forehead and front of the crown pinkish white; remainder of the crown and nape very deep chestnut; the whole upper plumage, wings and tail lighter chestnut; the quills with black bars on the inner webs and incipient bars on the outer webs; the tail with more or less perfect bars on both webs; the feathers of the other parts each with a small black mark, and those of the greater wing-coverts, scapulars and tertiaries with some white shaft-spots; feathers round and in front of the eye deep chestnut; disk whitish, more or less marked with chestnut; lower plumage fulvous-pink, sparingly spotted with brown, except on the tarsi and under tail-coverts.

Length about 11 inches, tail 3·5, wing 7·3, tarsus 1·9; these are the measurements of birds which are probably males. The females are said to be much larger.

The Bay Owl is said by Mr. Blyth to occur in Arrakan and Tenasserim. Capt. Feilden procured it at Thayetmyo, and Capt. Wardlaw Ramsay at Tonghoo and on the Karin hills east of that town. I have never myself met with it.

It is found in Sikhim and Nipal; and it extends to Cochin China and down the Malay peninsula to Sumatra, Java and Borneo.

This Owl frequents forests, but nothing is known of its habits. It has recently been shown that it belongs to the Bubonidæ and not to the Strigidæ.

Family STRIGIDÆ.

Genus STRIX, *Linn.*

546. STRIX FLAMMEA.

THE BARN-OWL.

Strix flammea, *Linn. Syst. Nat.* i. p. 133; *Sharpe, Cat. Birds B. Mus.* ii. p. 291; *Oates, S. F.* v. p. 142; *Legge, Birds Ceylon*, p. 164; *Dresser, Birds Eur.* v. p. 237, pl.; *Oates, S. F.* x. p. 181. **Strix javanica**, *Gm. Syst. Nat.* i. p. 295; *Jerd. B. Ind.* i. p. 117; *Hume, Nests and Eggs*, p. 59; *Salvad. Ucc. Born.* p. 22; *Bl. & Wald. B. Burm.* p. 68; *Hume & Dav. S. F.* vi. p. 26; *Hume, S. F.* viii. p. 83; *Bingham, S. F.* viii. p. 191; *Scully, S. F.* viii. p. 229. **Strix indica**, *Blyth, Ibis*, 1860, p. 251; *Hume, Rough Notes*, ii. p. 342; *id. S. F.* iii. p. 37; *Armstrong, S. F.* iv. p. 300. **Aluco flammeus**, *Seeböhm, Brit. Birds*, i. p. 148.

Description.—*Male and female.* Facial disk white, with a rufous spot in front of the eye; ruff yellowish buff, each feather mottled with brown; lower plumage light buff spotted with brown; upper plumage and wing-coverts fulvous; the terminal halves of the feathers brown, vermiculated with whitish, and each feather with a black and a white spot near the tip; tail fulvous, barred and vermiculated with brown; wings the same, but the inner webs chiefly white.

Bill pale bluish, with a tinge of pink on the culmen; mouth flesh-colour; cere flesh-colour, turning to yellow in front; iris dark brown; legs pinkish brown; claws horny brown.

Length 14·5 inches, tail 5, wing 11·5, tarsus 2·5, bill from gape 1·7. The sexes are of about the same size.

The Barn-Owl is abundant over the whole of Pegu and Arrakan. Mr. Davison did not meet with it in any part of Tenasserim; but Capt. Bingham records two birds from that Division captured near Moulmein.

This Owl, with slight modifications of plumage (and I follow Mr. Sharpe in uniting them all under one name), is found over the whole world in the tropical and temperate zones. Mr. Seeböhm limits its range to forty degrees of latitude on each side of the equator, except in Western Europe, where climatic conditions cause it to range still further from the equator.

The Barn-Owl is found in Burmah chiefly in woods and groves of trees, and not unfrequently in the roofs of large buildings, such as the barracks at Thayetmyo. It utters its screeching cry from November to January, and is silent or nearly so at other times. At Kyeikpadein these Owls were very abundant and noisy, and were in the habit of entering my bedroom at night, probably in pursuit of Bats, with which the bungalow was

swarming. They breed in December and January, and I have found their eggs both in holes of trees and in holes in the ground. They probably nest also in old wells and dilapidated pagodas. The eggs are usually five in number.

547. STRIX CANDIDA.

THE GRASS-OWL.

Strix candida, *Tick.* *J. A. S. B.* ii. p. 572; *Jerd. B. Ind.* i. p. 118; *Sharpe, Cat. Birds B. Mus.* ii. p. 308; *Bl. B. Burm.* p. 68; *David et Oust. Ois. Chine*, p. 46; *Hume & Dav. S. F.* vi. p. 27; *Hume, S. F.* viii. p. 83; *Oates, S. F.* x. p. 181. **Scelostrix candida**, *Hume, Rough Notes*, ii. p. 345; *Anders. S. F.* iii. p. 388. **Glaux candida**, *Hume, Nest and Eggs*, p. 60.

Description.—*Male and female.* The whole upper plumage, with median and greater wing-coverts, dark glossy brown; the feathers yellow at the base, this colour being more or less mixed with the brown, according to the disarrangement of the plumage; each feather with a small spot of white near the tip; lesser wing-coverts pale orange-buff spotted with brown; tail buffy white; the central tail-feathers completely barred across with dark brown, the others successively less barred, the outermost feathers being nearly pure white; quills in general orange-buff, barred with brown, and the tips also brown; the whole of the face and sides of the neck white; a patch of black in front of the eye; whole lower plumage pure white; the abdomen, under wing-coverts, sides of the breast and body spotted with brown.

Irides very dark brown; bill horny; legs livid. (*Jerdon.*)

Length 14 inches, tail 5·2, wing 13, tarsus 3·2.

The Grass-Owl was procured at Tonghoo by the late Colonel Lloyd. It has not yet been known to occur elsewhere in the Province.

It is found in the hill-tracts of Eastern Bengal and in a great portion of the Indian peninsula, and it ranges into China and Cochin China.

This species inhabits places covered with thick grass, and it is said to lay its eggs on the ground in November or December.

Order VII. ACCIPITRES.

Suborder FALCONES.

Family VULTURIDÆ.

Genus GYPS, *Savigny*.

548. GYPS INDICUS.

THE LONG-BILLED VULTURE.

Vultur indicus, *Scops. Del. Faun. et Flor. Insub.* ii. p. 85. **Gyps indicus**, *Jerd. B. Ind.* i. p. 9; *Hume, Rough Notes*, i. p. 21; *id. Nests and Eggs*, p. 5; *id. S. F.* iii. p. 18; *Sharpe, Cat. Birds B. Mus.* i. p. 10; *Bl. B. Burm.* p. 64; *Hume & Dav. S. F.* vi. p. 1; *Hume, S. F.* vii. p. 165, viii. p. 81; *Oates, S. F.* x. p. 177.

Description.—*Male and female.* The head bare, with a few hair-like feathers; upper part of the neck thinly covered with down; the lower part naked; upper back, scapulars and wing-coverts dull brown; lower back, rump and upper tail-coverts dull white; wings and tail blackish brown; ruff white; crop covered with dark brown feathers; lower plumage whity brown to tawny.

Bill and cere bluish horny, dusky at tip; legs and feet dusky cinereous; irides brown. (*Jerdon*.)

Length 38 inches, tail 10·5, wing 24, tarsus 4·5, bill from gape 3. The female is of about the same size.

The Long-billed Vulture appears to be generally distributed over the Province, at least as far south as Moulmein, but it is by no means plentiful. I have never myself shot a specimen of this Vulture; but I have often observed a species which differed from the very common *P. bengalensis*, and which was probably the present bird. Capt. Bingham observed it at Moulmein, and thinks the two species equally common. Mr. Hume states that he has seen a specimen that was killed in Upper Pegu.

It extends north into India, and is spread over a considerable portion of that peninsula, and it is stated to have occurred in Siam and at Malacca. Dr. Tiraud met with it in Cochin China.

This species is found in large flocks feeding on carrion; and it breeds on trees, laying but one egg, which is sometimes spotless greenish white, and at other times marked with reddish brown. The Western and Central Indian representative of this species (*G. pallescens*) appears always to breed on the ledges of cliffs.

Genus PSEUDOGYPS, *Sharpe*.

549. PSEUDOGYPS BENGALENSIS.

THE INDIAN WHITE-BACKED VULTURE.

Vultur bengalensis, *Gm. Syst. Nat.* i. p. 245. **Gyps bengalensis**, *Jerd. B. Ind.* i. p. 10; *Hume, Rough Notes*, i. p. 26; *id. Nests and Eggs*, p. 7; *id. S. F.* iii. p. 19; *Bl. B. Burm.* p. 65. **Pseudogyps bengalensis**, *Sharpe, Cat. Birds B. Mus.* i. p. 11; *Oates, S. F.* v. p. 142; *Hume & Dav. S. F.* vi. p. 1; *Hume, S. F.* viii. p. 81; *Scully, S. F.* viii. p. 219; *Bingham, S. F.* ix. p. 142; *Oates, S. F.* x. p. 177; *Kelham, Ibis*, 1881, p. 364.

Description.—*Male and female.* Head and neck naked, with a few brownish bristles; a ruff at the back of the neck white, and a patch above the breast black; back and upper tail-coverts dark brownish or black; rump white; lower plumage chocolate-brown, with fulvous-white shaft-stripes; wings and tail blackish; the upper wing-coverts margined with reddish brown; under wing-coverts white; inner side of the thighs covered with white down.

Iris brown; skin of head pinkish brown; bill dark plumbeous; legs brown; claws black.

Length 35 inches, tail 10, wing 23, tarsus 3·8, bill from gape 2·5. The above measurements are those of a female; the male appears to be of about the same size.

The Indian White-backed Vulture is abundant over the whole Province.

It is found in the Indo-Burmese countries and the peninsula of India, in Siam, Cochin China and the Malay peninsula nearly down to Singapore.

This species bears a superficial resemblance in coloration to the preceding, but may be known at all ages by having twelve tail-feathers instead of fourteen, which is the number *G. indicus* possesses. It is found in large flocks feeding on carrion and frequenting the trees growing near cantonments and villages. It breeds in November and December, making a large nest of sticks in very high trees and laying a single egg. When fresh the egg is very pale bluish white, sometimes marked with reddish brown, and as incubation proceeds it becomes very soiled. These Vultures breed in great numbers in some high trees near the village of Kyeikpadein.

Genus OTOGYPS, *Gray*.

550. OTOGYPS CALVUS.

THE BLACK VULTURE.

Vultur calvus, *Scop. Del. Faun. et Flor. Insub.* ii. p. 85; *Hume, Rough Notes*, i. p. 8; *Bl. B. Burm.* p. 64. **Otogyps calvus**, *Jerd. B. Ind.* i. p. 7; *Hume, Nests and Eggs*, p. 1; *id. S. F.* iii. p. 18; *Sharpe, Cat. Birds B. Mus.* i. p. 14; *Hume & Dav. S. F.* vi. p. 1; *Hume, S. F.* viii. p. 81; *Scully, S. F.* viii. p. 217; *Bingham, S. F.* ix. p. 142; *Oates, S. F.* x. p. 177; *Kelham, Ibis*, 1881, p. 364.

Description.—*Male and female.* General aspect of plumage black; head and neck naked; a few small plumes on the head and round the ears; plumes on the lower neck black, below which is a crescentic patch of white down occupying the upper part of the breast; a large patch on each flank pure white; inner side of thighs naked.

Bill dark brown; cere, base of bill and the head red; legs china-white; claws black; iris yellow. In some the iris appears to be reddish brown.

Length 31 inches, tail 10·2, wing 24, tarsus 4·8, bill from gape 2·75. The female appears to be of much the same size.

The Black Vulture is found sparingly over the whole Province.

It extends into Siam and Cochin China, and down the Malay peninsula as far at least as Perak, where Lieut. Kelham observed it. It is found in the Indo-Burmese countries and over the greater part of the Indian peninsula.

This fine Vulture is generally seen in couples associating with other Vultures, and, by virtue of their superior strength, appropriating the best food. It breeds in the early part of the year, making a large stick nest on large trees, frequently at no great height from the ground. It lays a single egg, which is usually unmarked pale greenish white. I once found in March the nest of a Vulture which I at the time considered to be this species; it contained one young bird, and was built in the celebrated old banyan tree near Pegu, in the roots of which the large image of Guadama is imbedded. The parent birds were not about, and I can only conjecture that the nest belonged to the present species.

Family FALCONIDÆ.

Subfamily ACCIPITRINÆ.

Genus CIRCUS, *Lacép.*

551. CIRCUS MELANOLEUCUS.

THE PIED HARRIER.

Falco melanoleucus, *Forst. Ind. Zool.* p. 12, pl. 11. *Circus melanoleucus*, *Jerd. B. Ind.* i. p. 99; *Hume, Rough Notes*, ii. p. 307; *Swinhoe, Ibis*, 1874, pl. x.; *Sharpe, Cat. Birds B. Mus.* i. p. 61; *Gurney, Ibis*, 1875, p. 225; *Bl. B. Burm.* p. 61; *Hume, S. F.* iii. p. 33; *Armstrong, S. F.* iv. p. 299; *Hume, S. F.* v. p. 11; *David et Oust. Ois. Chine*, p. 29; *Hume & Dav. S. F.* vi. p. 21; *Anders. Yunnan Exped.* p. 572, pls. xlv., xlv.; *Legge, Birds Ceylon*, p. 9; *Cripps, S. F.* vii. p. 250; *Hume, S. F.* viii. p. 82; *Bingham, S. F.* viii. p. 191, ix. p. 145; *Oates, S. F.* x. p. 180.

Description.—*Male and female.* The whole head and neck, breast, back and scapulars black, a few of the lowermost feathers of the latter grey; abdomen, sides of the body, vent, under tail-coverts, rump and upper tail-coverts white, the latter with indistinct bars of pale grey; tail grey tipped with white, and all the feathers, except the central ones, internally margined with the same; the first six primaries black, tipped with white; the other primaries and the secondaries silver-grey, broadly margined internally with white; tertiaries dark brown; shoulder of wing and lesser wing-coverts white, tinged with grey; winglet and primary-coverts greyish white; remainder of the coverts black.

Immature birds have the head and neck fulvous-brown, with large dark-brown spots; the ear-coverts streaked with brown; the lower plumage fulvous-white, streaked with brown, the streaks increasing in size towards the vent; upper tail-coverts white, with a few fulvous spots; quills brown, whitish interiorly and barred with darker brown, the shafts glossy hair-brown; back and scapulars and wing-coverts dark brown with pale edges; tail rufous-grey, tipped with white and crossed by five or six dark bands; some of the feathers of the upper wing-coverts whitish, with rich rufous edges.

The *young bird* is very rufous, with dark rufous-brown centres to all the feathers.

Base of bill bluish, remainder black; iris bright yellow; legs orange-yellow; cere dusky yellow; claws horn-colour.

Length 17·5 inches, tail 8·5, wing 13·8, tarsus 3, bill from gape 1·2.

The second, third, fourth and fifth primaries emarginated on the outer webs; the emargination of the second lying beyond the coverts and just visible without lifting them; the emarginations on the others are some distance, 2·5 to 3·5 inches, below the coverts. The female is rather larger than the male.

The Pied Harrier is a winter visitor to British Burmah, and is more or less abundant in the plains of the whole Province.

It has a wide range in Eastern Asia, being found in summer in Mongolia, Amurland and Northern China, and extending in winter as far south as Ceylon, Malacca and Cochin China.

The habits of this Harrier are peculiar, inasmuch as the adult females do not appear to migrate so far south as the males. All the pied birds shot in India and Burmah appear to be males, and it was long considered that birds in immature plumage were adult females. But even immature females are very rare in the winter, for in the course of many years' collecting I have not succeeded in procuring more than two specimens; the few that occur are obviously accidental stragglers, the bulk of the females remaining in their summer quarters, or, at most, not moving far south. Mr. Sharpe was, I believe, the first ornithologist to draw attention to the fact that the sexes, when adult, are alike in plumage. Mr. Cripps has lately stated (S. F. x. p. 327) that a pied bird shot by him in Assam, and sexed by himself, was a female, and has thus corroborated Mr. Sharpe's statement.

The Pied Harrier is found in Burmah from September to May. It is abundant in all the flatter parts of the country, flying backwards and forwards close to the ground, and feeding on crabs, frogs and large insects.

552. CIRCUS PYGARGUS.

MONTAGU'S HARRIER.

Falco pygargus, Linn. *Syst. Nat.* i. p. 126. **Falco cineraceus**, Mont. *Orn. Dict.* i. **Circus cineraceus**, Jerd. *B. Ind.* i. p. 97; Hume, *Rough Notes*, ii. p. 303; Bl. *B. Burm.* p. 61; Legge, *Birds Ceylon*, p. 12; Dresser, *Birds Eur.* v. p. 423, pl.; Hume, *S. F.* viii. p. 82; Kelham, *Ibis*, 1881, p. 368; Seebohm, *Brit. Birds*, i. p. 131. **Circus pygargus**, Sharpe, *Cat. Birds B. Mus.* i. p. 64; David et Oust. *Ois. Chine*, p. 28; Hume & Dav. *S. F.* vi. p. 21.

Description.—*Adult male.* The head, neck, upper plumage and breast dark bluish grey; upper tail-coverts white, broadly tipped with ashy; tail grey, the centre feathers uniform, the others with the inner webs barred, the bars on the pair next the central being brown, gradually changing to

rufous on the outer pair, and the interspaces changing in a similar manner from ashy to whitish; wing-coverts ashy grey, tipped darker; secondaries silvery grey, with a black bar across; the first six primaries black, the others silvery grey; tertiaries like the back; lower plumage from the breast downwards white streaked with chestnut; axillaries white with broad chestnut marks.

Adult female. Head and hind neck brown streaked with rufous; back, rump, scapulars, tertiaries, and wing-coverts dark brown, with indistinct fulvous margins to the feathers, the wing-coverts with broader margins; upper tail-coverts white; tail brown, tipped paler and cross-banded with darker brown, the bands becoming rufous towards the outer feathers, and the interspaces whitish; sides of the head brown streaked with rufous; ear-coverts dark brown; a patch of feathers under the eye whitish; lower plumage buffy white, with elongated rufous centres to the feathers; quills dark brown barred with darker brown, the primaries and primary-coverts tinged with grey externally.

The *young* have the head and neck rich rufous with brown streaks; the upper plumage brown with rufous edges; the upper tail-coverts whitish, broadly edged with rufous; a broad patch under the eye extending to the ear-coverts whitish; hinder part of ear-coverts dark brown; entire lower plumage rufous, with a few narrow black streaks; tail rufous, banded with brown; quills brown, more or less barred with darker brown.

Legs and feet yellow; iris bright yellow (brownish yellow in the female); bill black.

Length 17 inches, tail 9·5, wing 15, tarsus 2·2, bill from gape 1·1. The female is rather larger than the male. The second, third and fourth primaries only are emarginated on the outer webs, and the emargination on the second primary is quite an inch below the coverts.

It is difficult to comprise in any description the various phases of plumage which this species undergoes before it becomes adult. The character of the emarginations on the primary-quills will be found the safest guide to identification.

Montagu's Harrier is stated by Mr. Blyth to be found in Pegu and Tenasserim; and Capt. Wardlaw Ramsay writes (*Ibis*, 1875, p. 351) that he thought he once saw this species in Karennee. It is common enough in India and China, and it is therefore a very likely bird to be found in all parts of Burmah.

This Harrier is found, according to season, over the greater part of Europe, Africa and Asia. To Burmah and the southern portion of the continent of Asia it is merely a winter visitor. In its winter migration it goes as far as the Moar river in the Malay peninsula, where Lieut. Kelham secured a Harrier which he identifies with the present species.

This Harrier is found in dry plains and does not appear to affect swamps. It lays four to six eggs on the ground, and they are greenish white, occasionally marked with reddish brown.

553. CIRCUS MACRURUS.

THE PALE HARRIER.

Accipiter macrourus, S. G. Gmel. *N. Comm. Petrop.* xv. p. 439, pls. viii., ix. *Circus swainsonii*, Smith, *S. Afr. Quart. Journ.* i. p. 384; *Jerd. B. Ind.* i. p. 96; *Hume, Rough Notes*, ii. p. 298; *Bl. B. Burm.* p. 61; *Dresser, Birds Eur.* v. p. 441, pl. *Circus pallidus*, Sykes, *P. Z. S.* 1832, p. 80; *Hume, S. F.* i. p. 160. *Circus macrurus*, Sharpe, *Cat. Birds B. Mus.* i. p. 67; *David et Oust. Ois. Chine*, p. 28; *Legge, Birds Ceylon*, p. 17; *Hume, S. F.* viii. p. 82; *Oates, S. F.* x. p. 180.

Description.—*Male.* The whole upper plumage grey; the second to the fifth primaries brown on the terminal half; rump whitish barred with grey; central tail-feathers like the upper plumage but paler, the laterals white banded with grey; chin and throat pale grey; remainder of the lower surface pure white; lower tail-coverts white with a few obsolete marks; forehead and streak above the eye sordid white; cheeks and ear-coverts striated with grey and pale rufous.

The *female* has the upper plumage and wings brown, the latter barred darker; upper tail-coverts pure white, with a few small marks near the tips; tail brown, barred with five darker brown bars, becoming paler and rufescent towards the outer feathers; the whole lower plumage rufous-white, the feathers centred darker.

In the *young* the whole lower plumage is ferruginous; the forehead, crown and nape brown, each feather edged with rufous; a stripe over and under the eye white; the cheeks and ear-coverts dark brown mixed with rufous; the back and scapulars brown; rump brown, broadly edged with rufous; upper tail-coverts white; tail brown, broadly barred with rufous-white; median wing-coverts pure rufous; the other coverts brown, edged paler; wings brown, tipped paler, and all the inner webs broadly barred with rufous-white; under wing-coverts pale ferruginous, with darker shaft-stripes.

Iris yellow; cere and legs yellow; claws black; bill black; gape greenish yellow.

Length 18 inches, tail 9, wing 13·5, tarsus 2·7, bill from gape 1·1. The female is considerably larger, the wing being nearly 15. The second, third and fourth primaries only emarginated on the outer web, the emargination of the second primary being situated at the tip of the wing-coverts so as to be almost entirely hidden.

The Pale Harrier is said by Mr. Blyth to occur in Arrakan and Pegu. I found it far from uncommon in the great plains in the southern portion of Pegu, more especially on both sides of the canal.

This Harrier is found, according to season, over the greater portion of Europe, Africa and Asia. It visits India, the Indo-Burmese countries, Burmah and South China in the winter season only.

I observed this Harrier chiefly along the course of rivers and on the edges of ponds. It perches on clods of earth, and occasionally on a thick bunch of grass, and flies very gracefully.

554. CIRCUS ÆRUGINOSUS.

THE MARSH-HARRIER.

Falco æruginosus, Linn. *Syst. Nat.* i. p. 130. *Circus æruginosus*, Jerd. *B. Ind.* i. p. 99; *Hume, Rough Notes*, ii. p. 314; *id. Nests and Eggs*, p. 51; *id. S. F.* iii. p. 35; *Sharpe, Cat. Birds B. Mus.* i. p. 69; *Bl. B. Burm.* p. 61; *David et Oust. Ois. Chine*, p. 30; *Dresser, Birds Eur.* v. p. 415, pl.; *Legge, Birds Ceylon*, p. 5; *Hume & Dav. S. F.* vi. p. 22; *Cripps, S. F.* vii. p. 250; *Hume, S. F.* viii. p. 82; *Scully, S. F.* viii. p. 226; *Oates, S. F.* x. p. 180; *Seeborn, Brit. Birds*, i. p. 124.

Description.—*Male and female.* Entire head, neck and breast creamy buff, streaked with reddish brown; upper plumage dark brown, the feathers edged with fulvous-brown; lesser wing-coverts creamy white, with rusty brown margins and streaks; median coverts nearly uniform brown; the outer greater coverts, the primary-coverts and the secondaries bluish ashy, paler at the tips; primaries blackish brown, paler at tip and white at their bases; tertiaries brown washed with ashy; upper tail-coverts greyish white tinged with rufous; tail uniform bluish ashy; abdomen, sides of the body, vent, thighs and under tail-coverts ferruginous, with buffy white streaks on the abdomen and sides; under wing-coverts buffy white; axillaries with shaft-spots of deep rufous.

Young. Forehead, crown, nape, cheeks and throat creamy buff, with rusty shaft-stripes; ear-coverts, fore neck and the whole lower plumage except the breast deep rufous-brown; the breast creamy buff, with large central rufous-brown streaks; wings, tail and upper plumage dark brown; a few of the smaller wing-coverts broadly edged with pale buff.

Very young birds are uniform dark amber-brown. In this plumage they do not appear ever to visit Burmah.

Base of bill greenish yellow, the remainder black; mouth purplish flesh-colour; cere greenish yellow; iris yellow; legs pale yellow; claws dark horn-colour. The female and young have the iris brownish yellow.

Length 21 inches, tail 9·7, wing 16, tarsus 3·4, bill from gape 1·45. The female is rather larger. The second, third, fourth, and fifth primaries are emarginated on the outer webs: in this respect it resembles *C. melano-leucus*; but the young of the two species, apart from their plumage, can always be separated by their size, *C. aeruginosus* being a much larger bird.

The Marsh-Harrier is extremely common in all the low-lying plains of the province in the winter season, from September to May.

It is found, according to season, in Europe, Africa, and a considerable portion of Asia. In winter it visits, as far as Eastern Asia is involved, India and Ceylon, the Indo-Burmese countries, China, Cochin China, the Malay peninsula and the Philippine Islands.

Another Harrier (*C. spilonotus*) occurs in Eastern Asia, and may probably be found to wander into Burmah. The male is entirely white below, with the throat and breast streaked with black.

The Marsh-Harrier frequents by preference swamps and localities where water is abundant; but I have also frequently seen it, late in the hot weather, in parched burnt-up grass-plains. Like other Harriers, it always flies pretty near the ground, resting at times on clods of earth or even on the ground itself. It is said occasionally to remain in India throughout the year and to breed there. Its nest is placed on the ground near water; and the eggs, three to six in number, are pale bluish green, sometimes marked with pale brown.

Genus ASTUR, *Lacép.*

555. ASTUR TRIVIRGATUS.

THE CRESTED GOSHAWK.

Falco trivirgatus, *Temm. Pl. Col.* 303. **Spizaetus rufitinctus**, *McClell. P. Z. S.* 1839, p. 153. **Astur indicus**, *Hodgs. in Gray's Zool. Misc.* p. 81. **Astur trivirgatus**, *Jerd. B. Ind.* i. p. 47; *Salvad. Ucc. Born.* p. 17; *Sharpe, Cat. Birds B. Mus.* i. p. 105; *Legge, Birds Ceylon*, p. 20; *Hume, S. F.* viii. p. 81. **Lophospiztia trivirgatus**, *Hume, Rough Notes*, i. p. 116; *Bl. & Wald. B. Burm.* p. 62; *Gurney, Ibis*, 1875, p. 355; *id. S. F.* v. p. 502; *David et Oust. Ois. Chine*, p. 22. **Lophospiztia indica**, *Hume, S. F.* iii. p. 25; *id. S. F.* v. p. 8. **Lophospiztia rufitincta**, *Hume, S. F.* v. p. 124; *Hume & Dav. S. F.* v. p. 7. **Astur rufitinctus**, *Hume, S. F.* viii. pp. 81, 152; *Oates, S. F.* x. p. 178.

Description.—*Male and female.* Above slaty grey, the upper tail-coverts blackish and tipped with white; head and neck clearer slaty grey, including a conspicuous occipital crest, the sides of the neck somewhat tinged with rufous; quills browner than the back, primaries with rufescent

shafts, barred above with dark brown, much paler underneath, where the quills are white at the base of the inner web; tail ashy brown, paler at tip, crossed with four bands of dark brown; throat white, with a distinct black moustachial streak on each side and a broad median line; chest clear tawny rufous; rest of under surface white, broadly banded with pale rufous, each bar of this colour having a conterminous brown bar; the thighs thickly barred with ashy brown without any rufous tinge; under tail-coverts white; under wing-coverts white spotted with brown or rufous-brown, and the axillaries similarly barred. (*Sharpe*.)

Upper mandible and tip of lower dark brown or black; remainder of the lower mandible plumbeous; cere and gape lemon-yellow; eyelids and orbital skin green; edges of eyelids yellow; iris bright yellow; legs yellow; claws black.

Length 16 inches, tail 8, wing 8·6, tarsus 2·7, bill from gape 1·1. These are the measurements of a bird shot in Pegu.

There are two races of this bird, a larger one (*A. rufitinctus*) and a smaller one (*A. trivirgatus*). The bird I procured on the Pegu hills belongs to the smaller race; but birds from Bengal and from Tenasserim belong, according to Mr. Hume, to the larger race. Mr. Gurney gives the measurements of a number of specimens (*l. c.*), and it appears that in *A. rufitinctus* the wings vary in length from 9·4 to 11·5 inches, whereas in *A. trivirgatus* they vary from 7·5 to 9 inches. He states that the adults of *A. trivirgatus* differ from *A. rufitinctus* not only in their smaller size, but also in their very bright fulvous or rufescent tints on the upper breast and on the sides of the neck.

I procured only one specimen of the Crested Goshawk in the evergreen forests of the Pegu hills in April, and Mr. Davison secured two specimens in Tenasserim. It appears therefore to be very rare in Burmah.

It extends through the Indo-Burmese countries into India, where it is found along the Himalayas from Assam to Nipal, in Bengal, Southern India and Ceylon. It ranges into China, and it is met with in the Malay peninsula, Sumatra, Java, Borneo and the Philippine Islands.

This Goshawk appears to frequent dense forests.

556. ASTUR POLIOPSIS.

HUME'S GOSHAWK.

Micronisus poliopsis, *Hume*, *S. F.* ii. p. 325; *id.* *S. F.* iii. p. 24; *Cripps*, *S. F.* v. p. 81. *Astur poliopsis*, *Sharpe*, *Cat. Birds B. Mus.* i. p. 110; *Bingham*, *S. F.* v. p. 81; *David et Oust. Ois. Chine*, p. 24; *Hume & Dav. S. F.* vi. p. 7; *Ander-son*, *Yunnan Exped.* p. 573; *Hume*, *S. F.* viii. p. 81; *Bingham*, *S. F.* viii. p. 190, ix. p. 143; *Oates*, *S. F.* x. p. 178. *Micrastur badius*, *Bl. & Wald. B. Burm.* p. 62. *Scelopspizias poliopsis*, *Gurney*, *Ibis*, 1875, p. 361.

Description.—*Male and female.* Upper plumage bluish grey, the nape mottled with white; central tail-feathers barless, the others with broken bars of brown and tipped whitish; throat dusky white; lower plumage bright rufous narrowly barred with white; thighs, under tail-coverts and vent white; quills ashy grey, barred on the inner webs with dark brown and the interspaces white.

A very young bird is brown above, all the feathers edged rufous; tail ashy brown, with dark brown bars and tipped with whitish; lower plumage white; the throat with a central stripe of brown, the other parts with large, central, rufous-brown drops; quills brown, barred with darker brown, and a large portion of the inner webs rufous-white. *At the next stage* the rufous edgings to the upper plumage are lost and the drops on the lower parts are more thickly disposed and exhibit a tendency to bars.

Length 12·5 inches, tail 6·5, wing 7·2 to 8, tarsus 2, bill from gape ·9. The female is larger than the male: length 14 inches, tail 7, wing 8·5.

This bird is hardly more than a race of *A. badius* of India. It differs in being rather larger, in wanting the rufous on the nape, in being of a purer grey, in wanting the throat-stripe in the adult, and in having the rufous bands below broader.

Hume's Goshawk is found over the whole province in greater or less abundance.

It extends north as far as Cachar, it is met with in China, Siam and Cochin China, and it probably ranges some distance down the Malay peninsula. Mr. Gurney mentions (*l. c.*) a bird from Ceylon as belonging to this race; but some mistake must underlie this statement.

This Goshawk is found in well-wooded parts of the country and feeds on insects and small reptiles. Capt. Bingham found the nest in Tenasserim in April; it was made of sticks and placed in the branch of a large tree, and it contained three eggs, which were pale bluish white.

557. *ASTUR SOLOENSIS*.

HORSFIELD'S GOSHAWK.

Falco soloensis, *Horsf. Trans. Linn. Soc.* xiii. p. 137. *Micronisus soloensis*, *Salvad. Ucc. Born.* p. 17. *Astur soloensis*, *Sharpe, Cat. Birds B. Mus.* i. p. 114, pl. iv. fig. 1; *David et Oust. Ois. Chine*, p. 8; *Hume & Dav. S. F.* vi. p. 8; *Hume, S. F.* viii. p. 81.

Description.—*Adult male and female.* The whole upper plumage, wings and tail and sides of the head dark bluish ashy; the tail browner and crossed by four or five bands of dark brown, indistinct on the central pair of feathers, more distinct on the others; the bases of all the quills more or less white; the whole lower plumage pale ferruginous, paling on the vent and thighs; chin and throat paler, with indications of a brown stripe down the centre of the throat; under wing-coverts unmarked pale buff; axillaries buffy white; the bases of the feathers of the upper plumage mostly white and showing up on the nape and sometimes on the scapulars.

The *young* are brown above with rufous edges to the feathers; the lower surface white, the chest streaked and the breast and flanks barred with pale rufous; under wing-coverts buff.

The legs and feet bright orange; claws black; cere and nostrils orange; gonys and base of upper mandible plumbeous; rest of bill black; irides bright yellow. (*Davison.*)

Length about 11 inches, tail 5·4, wing 7·8, tarsus 1·7, bill from gape ·75. The male is rather smaller.

The above descriptions are taken from Chinese specimens in the Swinhoe collection; the adult plumage is described from an extremely old female.

Horsfield's Goshawk occurs in the extreme south of Tenasserim, where it will probably be found to be not uncommon.

It is met with in China, Cochin China, the Malay peninsula and the islands as far as New Guinea.

A. cuculoides, an allied species found in China, may possibly visit Burmah at times; it has the under wing-coverts pure white.

Genus ACCIPITER, *Briss.**

558. ACCIPITER NISUS.

THE SPARROW-HAWK.

Falco nesus, *Linn. Syst. Nat.* i. p. 130. **Accipiter nesus**, *Jerd. B. Ind.* i. p. 51; *Hume, Rough Notes*, i. p. 124; *Dresser, Birds Eur.* v. p. 599, pl.; *Hume, Nests and Eggs*, p. 25; *id. S. F.* iii. p. 24; *Sharpe, Cat. Birds B. Mus.* i. p. 132; *Gurney, Ibis*, 1875, p. 479; *David et Oust. Ois. Chine*, p. 27; *Wardlaw Ramsay, Ibis*, 1877, p. 454; *Oates, S. F.* v. p. 247; *Legge, Birds Ceylon*, p. 27; *Hume & Dav. S. F.* vi. p. 10; *Hume, S. F.* viii. p. 81; *Oates, S. F.* x. p. 178; *Seebohm, Brit. Birds*, i. p. 135.

Description.—*Adult male.* The whole upper plumage dark slaty, the quills and lateral tail-feathers browner, the quills barred with darker brown; the tail crossed by four dark brown bands and tipped with whitish; lores grey; cheeks and ear-coverts deep ferruginous; chin and throat rufous-white; lower plumage white barred with rufous, the bars very close together on the breast, wider apart on the abdomen and thighs; sides of the body nearly entirely rufous; under tail-coverts white; under wing-coverts and axillaries pale rufous-white barred with brown.

The *female* differs in being browner on the upper plumage; there is no rufous on the sides of the head and on the lower plumage; the cheeks, ear-coverts, chin and throat are white streaked with brown, and the whole lower plumage is white, regularly barred across with firm distinct equidistant brown bands; the longer under tail-coverts are nearly pure unmarked white, and the under wing-coverts and axillaries are white barred with brown.

The *young* are brown above, each feather being edged with rufous; an eyebrow, cheeks and ear-coverts white streaked with black; the quills and tail are much as in the adult, but the latter is crossed by five dark bands; lower plumage white, the throat streaked with black; the breast, flanks and thighs barred with brown or rufous-brown, these bars being more or less broken and assuming the shape of a series of spots or irregular marks; under tail-coverts white; under wing-coverts buffy white barred or marked with brown.

Bill blue; cere, legs and toes yellow; irides orange; claws black. (*Seebohm.*)

Length about 13 inches, tail 6·2, wing 8, tarsus 2·2, bill from gape ·75.

* The small Sparrow-Hawks and Goshawks are very like each other, especially when immature. It may be well therefore to remind the student that the length of the middle toe should always be looked at first in discriminating a species of *Astur* or *Accipiter*. In the former the middle toe is short and does not much exceed the lateral toes, whereas in *Accipiter* the toe is extremely long and extends far beyond the lateral toes.

The female is very much larger: length up to 16 inches, tail 7·5, wing 9·5, tarsus 2·4, bill from gape ·85.

The Sparrow-Hawk has been known to occur a few times in Burmah. Capt. Feilden procured it at Thayetmyo, Capt. Wardlaw Ramsay at Tonghoo, Capt. Raikes at Yandon near the head of the Irrawaddy Delta, and Mr. Davison on Mooleyit mountain in Tenasserim.

It visits India, Burmah, China and Cochin China in the winter, being found in summer in Central and Northern Asia. It occurs also over the whole of Europe and Northern Africa, migrating in those continents according to season.

The Sparrow-Hawk is no doubt commoner in Burmah than the few instances of its occurrence above recorded would lead one to suppose, for it is very abundant in some of the countries to the immediate north. It breeds in some portions of the Himalayas in May and June. In Europe it makes a stick nest in trees, and lays three to six eggs, bluish white marked with reddish brown.

559. ACCIPITER VIRGATUS.

THE BESRA SPARROW-HAWK.

Falco virgatus, Reinw., Temm. Pl. Col. 109. *Accipiter virgatus*, Jerd. B. Ind. i. p. 53; Hume, *Rough Notes*, i. p. 132; *Salvad. Ucc. Born.* p. 17; Hume, S. F. ii. p. 141; Sharpe, *Cat. Birds B. Mus.* i. p. 150; Gurney, *Ibis*, 1875, p. 480; Bl. & Wald. B. Burm. p. 62; David et Oust. Ois. Chine, p. 26; Legge, *Birds Ceylon*, p. 26; Hume & Dav. S. F. vi. p. 10; Hume, S. F. viii. p. 81; Sharpe, S. F. viii. p. 440; Gurney, S. F. viii. p. 443; Hume, S. F. ix. p. 231; Parker, S. F. ix. p. 475; Oates, S. F. x. p. 178; Kelham, *Ibis*, 1881, p. 365. *Tetrastizias rhodogastra*, apud Bl. & Wald. B. Burm. p. 62.

Description.—*Male and female.* Forehead, crown and nape very dark bluish ashy; back, wing-coverts, scapulars, rump and upper tail-coverts dark brown tinged with ashy; quills brown, broadly barred with darker brown, the bases of all whitish; under aspect of wing brown, broadly barred with white; tail ashy brown, crossed by three broad blackish bands; sides of the head ashy brown; chin and throat white, with a narrow brown gular stripe; centre of the breast whitish; sides of the breast and of the body and the thighs ochraceous chestnut, indistinctly barred with whitish; abdomen, vent and under tail-coverts almost pure white; under wing-coverts and axillaries white barred with blackish brown.

The *young* have the whole upper plumage brown, each feather margined with rufous, the quills barred with blackish; tail ashy brown, with three dark bands across all the feathers but the outermost ones, which have five

narrower bands ; chin and throat pale rufous, with a brown gular stripe ; sides of the head mixed brown and rufous ; sides of the neck deep ferruginous mottled with brown ; remainder of lower plumage rather bright ferruginous, paler on the abdomen and under tail-coverts ; the breast with broad brown streaks ; the abdomen and sides of the body with roundish rufous-brown spots, showing a tendency in places to become bars ; under tail-coverts with large triangular brown patches ; under wing-coverts and axillaries ferruginous spotted with brown.

Legs and feet pale yellowish green ; bill plumbeous blue, tipped blackish ; irides and cere gamboge-yellow. (*Hume.*)

Length about 12 inches, tail 5·6, wing 6·6, tarsus 2·1, bill from gape ·8. The female is rather larger, the wing reaching the length of 7·5.

I have drawn up my descriptions from the oldest and youngest birds that I was able to find in Mr. Seebohm's collection. The variations of plumage are, of course, immense, but they will be found, I think, to range between the two extremes above described.

I procured an undoubted specimen of the Besra Sparrow-Hawk on the Pegu hills a few miles above the town of Pegu. Capt. Feilden obtained a Sparrow-Hawk of this section which has given rise to much doubt—Mr. Sharpe, according to Lord Tweeddale, having identified it with *A. stevensoni*, and Mr. Gurney, on the other hand, and according to the same authority, having identified it with the Celebean species *A. rhodogaster*. It is useless to speculate now on what the bird really was ; but I notice that Mr. Gurney records a specimen of the true *A. virgatus* from Thayetmyo as being in the Norwich Museum. Mr. Blyth gives *A. virgatus* from Arrakan and Tenasserim, but I do not know on what authority. It appears to be a rare species, as Mr. Davison procured only one specimen in the latter Division at the town of Thatone.

Two closely allied races, *A. gularis* and *A. stevensoni*, occur, the first in the Himalayas, Japan and China, and the second in China and the Malay peninsula. The distinctions between the three races are too minute to be entered upon in this work.

So long as the three races of this Sparrow-Hawk remain so difficult to distinguish, it is not easy to trace the exact distribution of *A. virgatus*. It appears, however, to be spread over India, Ceylon, the Andamans, the Indo-Burmese countries, portions of China, the Malay peninsula and the islands of the Malay archipelago.

Mr. Parker found the nest of this bird in Ceylon in June, a small structure made of sticks, placed in a tree, and containing one young bird.

Subfamily BUTEONINÆ.

Genus BUTEO, *Cuvier*.

560. BUTEO PLUMIPES.

THE HARRIER BUZZARD.

Circus plumipes, *Hodgs. in Gray's Zool. Misc.* p. 81. **Buteo plumipes**, *Hodgs. P. Z. S.* 1845, p. 37; *Jerd. B. Ind.* i. p. 91; *Hume, Rough Notes*, ii. p. 285; *Sharpe, Cat. Birds B. Mus.* i. p. 180, pl. vii. fig. 1; *Bl. & Wald. B. Burm.* p. 64; *Hume, S. F.* iv. p. 358; *Gurney, Ibis*, 1876, p. 369; *id. S. F.* v. p. 65; *Hume, S. F.* v. p. 347; *Legge, Birds Ceylon*, p. 31; *Hume, S. F.* viii. p. 82; *Scully, S. F.* viii. p. 225; *Oates, S. F.* x. p. 180. **Buteo japonicus**, *apud Hume, S. F.* iii. p. 30.

Description.—Everywhere dull smoky brown, the wing-coverts and scapulars lighter; primaries dark brown, inclining to purplish brown towards the tips; the inner web buffy white barred with brown; shafts whitish; secondaries paler brown like the back; tail uniform smoky brown, with whitish shafts and pale whity-brown tips, showing under certain lights obsolete remains of light cross bars, which are still distinctly indicated on the inner web and under surface of the tail, which is ashy white; lores whitish; sides of face and of neck as well as the entire under surface of the body, including the under wing- and tail-coverts, uniform smoky brown, somewhat washed with rufous on the sides of the face and throat. (*Sharpe*.)

Length 20 inches, tail 9, wing 15·4, tarsus 3, bare part of tarsus in front 1·1 to the root of the middle toe, on the side to sole of foot 1, culmen 1·25. (*Sharpe*.)

I have not ventured to investigate the difficult group of the Buzzards, and I therefore gladly avail myself of Mr. Sharpe's description of Mr. Hodgson's type of *B. plumipes*, the species with which Mr. Hume identifies Buzzards procured in Burmah. I have never seen any Buzzards from that country, and therefore any investigations carried out in England, in the absence of Burmese birds, would have been of little use so far as the object of this work was concerned.

The Buzzards vary immensely in the colour of the plumage, and I do not think that any number of elaborate descriptions would enable the bird to be recognized in all its stages. The Buzzards have the upper half of the tarsus feathered, and the whole of the naked part behind is scaled, not reticulated. This character is possessed by the Harriers and Hawks; but the Buzzards may be distinguished from both these groups by their massive make and by their enormously thick short tarsus.

The Harrier Buzzard was procured at Thayetmyo by Capt. Feilden; and Mr. Hume states that he has received a second specimen from the same place.

This bird is found over the whole peninsula of India and Ceylon, and, if identical with *B. japonicus*, it extends to China and Japan.

Capt. Feilden remarks of the bird he shot at Thayetmyo that he found it in tolerably thick tree-jungle. The Buzzards are forest-loving birds, and make their nests in trees.

Subfamily AQUILINÆ.

Genus AQUILA, *Briss.*

561. AQUILA BIFASCIATA.

THE STEPPE-EAGLE.

Aquila bifasciata, *J. E. Gray in Gray & Hardw. Ill. Ind. Zool.* i. pl. 17; *Brooks, S. F.* i. pp. 290, 326; *Bl. B. Burm.* p. 63. *Aquila nipalensis*, *Hodgs. Asiat. Res.* xviii. pt. 2, p. 13, pl. 1; *Dresser, Birds Eur.* v. p. 507, pl.; *Gurney, Ibis*, 1877, p. 222; *Hume, S. F.* vii. p. 338, viii. p. 81; *Oates, S. F.* x. p. 179. *Aquila mogilnik*, *apud Sharpe, Cat. Birds B. Mus.* i. p. 240; *Hume, S. F.* iii. p. 25; *David et Oust. Ois. Chine*, p. 8; *Hume & Dav. S. F.* vi. p. 11.

Description.—*Nearly adult male and female.* General colour pale brown, the scapulars browner; upper tail-coverts white; quills blackish; the primaries narrowly tipped with whitish; the secondaries with broader whitish tips and with some indistinct light bars near the end; the tertiaries variegated with fulvous-white; the primary-coverts and most of the great wing-coverts broadly tipped with fulvous-white; tail dark brown, broadly tipped with fulvous-white and indistinctly barred across.

The above is the description of three specimens procured in Pegu, and I think that most of the specimens met with in Burmah will be found to be in this plumage. This Eagle does not undergo any very marked changes from youth to old age. The perfect adult is characterized by a large buff patch on the nape; and the young birds have the wing-coverts broadly tipped with bright fulvous, forming two conspicuous bands across the wing; the larger coverts are also tipped with fulvous-white as above described, and form a third band.

Gape, cere and feet bright yellow; iris dark brown; eyelids greenish; bill black; claws black.

Length 30 inches, tail 11·5, wing 22, tarsus 3·5, bill from gape 2·8, cere ·85. The female is a little larger.

It has been shown that the name of *A. mogilnik* is properly referable to the Imperial Eagle; and Mr. Gurney agrees with Mr. Dresser in considering the name of *A. nipalensis* the correct one for the present species. Both *A. bifasciata* and *A. nipalensis* apply to the same bird, and the former name is senior by a year. The Steppe-Eagle has long been confounded with the Imperial Eagle, and I therefore do not give any synonyms which apply to both species.

A. mogilnik, when adult, is of a dark blackish brown, with some of the scapulars white, and the young birds are lineated.

The Steppe-Eagle is not uncommon in Burmah as a winter visitor. Capt. Feilden states that it is very common at Thayetmyo, but I cannot say that I ever found it so. Further south, however, near Pegu and on the banks of the canal, I generally succeeded in shooting three or four specimens every winter. Mr. Davison notes its occurrence in Tenasserim both at Moulmein and Tavoy.

It has a considerable range, being found in Eastern Europe, Southern Asia, China and Eastern Siberia. It appears to be more or less migratory.

This Eagle is a heavy dull bird; and the specimens I procured were generally seated on the ground, allowing me to approach within gunshot without difficulty.

562. AQUILA CLANGA.

THE SPOTTED EAGLE.

Aquila clanga, *Pall. Zoog. Rosso-Asiat.* i. p. 351; *Sharpe, Cat. Birds B. Mus.* i. p. 248; *Hume, S. F.* iii. p. 25; *Gurney, Ibis*, 1877, p. 329; *David et Oust. Ois. Chine*, p. 9; *Dresser, Birds Eur.* v. p. 499, pl.; *Hume & Dav. S. F.* vi. p. 11; *Hume, S. F.* viii. p. 81; *Oates, S. F.* x. p. 179. *Aquila nævia* (*Gm.*), *Jerd. B. Ind.* i. p. 59; *Hume, Rough Notes*, i. p. 162; *id. Nests and Eggs*, p. 28; *Anders. P. Z. S.* 1871, p. 686; *Brooks, S. F.* i. p. 329, iii. p. 304; *Bl. B. Burm.* p. 63. *Aquila maculata* (*Gm.*), *Brooks, S. F.* iv. p. 268.

Description.—*Male and female.* General colour uniform dark purplish brown; the feathers of the lower back and rump variegated with fulvous; upper tail-coverts white slightly marbled with brown; wing-coverts edged paler; tertiaries subterminally grey; tail without bars and tipped with whitish grey; thighs marked with fulvous; tarsi variegated with white; under tail-coverts white.

Two other birds have the upper plumage dark purplish brown; wing-coverts and scapulars streaked with greyish white; back and rump a mixture

of tawny, brown and grey ; upper tail-coverts white ; under wing-coverts centred with pale fulvous ; the whole lower plumage, from the breast downwards, fulvous-brown with dark brown edges ; chin, throat and breast uniform dark hair-brown ; under tail-coverts white ; thighs mixed pale fulvous and dark purplish brown ; tarsi nearly uniform brown, becoming fulvous or whitish near the toes.

Iris, gape and cere pale yellow ; middle part of the bill plumbeous, the tip dark brown ; eyelids and orbital skin pale pinkish flesh-colour ; toes pale yellow ; claws black.

Length 26 inches, tail 10, wing 19·5, tarsus 4, bill from gape 2·3. These are the average dimensions of three young males. The female is considerably larger, the wing being 21·5 and the tail 11·5.

I have described above the only three Spotted Eagles I ever procured in Burmah. Those birds which visit the Province will probably always be found to be immature, and consequently in a plumage somewhat similar to those above described*.

The very young bird is characterized by having buff streaks on the head and neck ; otherwise they are in much the same plumage as above described. The general colour of the old bird, according to Mr. Sharpe, is pale brown, and there are no traces of spots on the wing-coverts and scapulars ; but according to Mr. Anderson and Mr. Dresser, the adult plumage is a uniform dark brown, with some white feathers on the tarsi. These white feathers appear to be a characteristic feature of this Eagle at all ages.

The Spotted Eagle visits Burmah during the winter months in small numbers. I procured three birds at the junction of the Canal with the Pegu river, and Capt. Feilden procured it at Thayetmyo. Mr. Blyth records it from Arrakan, and Colonel Tickell states that he got it in Tenasserim.

This Eagle has a very wide range, being found over a considerable portion of Asia, Europe and Africa.

It frequents by preference well-watered and swampy localities, and it appears to feed largely on frogs. The nest is placed on a tree, and the eggs, two or three in number, are white blotched with red.

This Eagle and the next may be separated from the others by their rounded nostrils.

* I have paid no great attention to the Eagles ; for they are very scarce in Burmah, and there is consequently no opportunity of collecting a series.

563. *AQUILA HASTATA.*

THE LONG-LEGGED EAGLE.

Morphnus hastatus, Less. *Voy. Bélang.* p. 217. *Aquila hastata*, Jerd. *B. Ind.* i. p. 62; Hume, *Rough Notes*, i. p. 180; *id.* *Nests and Eggs*, p. 31; Anders. *P. Z. S.* 1872, p. 69; Brooks, *S. F.* i. p. 293; Sharpe, *Cat. Birds B. Mus.* i. p. 248; Brooks, *S. F.* iv. p. 269; Gurney, *Ibis*, 1877, p. 329; Hume, *S. F.* viii. p. 81. *Aquila fusca*, apud Bl. *B. Burm.* p. 63.

Description.—*Male and female.* Plumage above glossy hair-brown, most of the feathers tipped with white; upper tail-coverts barred with white; quills glossy purplish black; tail the same, obsoletely barred with dusky grey and with a white tip; throat and breast unspotted brown; breast, abdomen, feathers of the leg, lower wing-coverts and under tail-coverts pale fawn or yellowish white, closely barred with brown; quills and tail beneath grey, mottled and barred with dusky; in some only the feathers of the hind head and back of the neck are tipped white, three distinct rows of spots on the wings, and the tertiaries broadly tipped with white; in others the spots are still less developed.

Young birds are much lighter brown; the tertiaries and secondaries barred and clouded with whitish and brown; the tail more distinctly barred, and the lower parts from the breast streaked longitudinally with fulvous-white. (*Jerdon.*)

Length 23 inches, tail 9·5, wing 19, tarsus 3·9. The female is rather larger, the wing measuring about 19·5 inches and the tail 10.

Mr. Blyth, in his Catalogue of Burmese birds, records an Eagle from Arrakan under the name of *A. fusca*, and identifies it with Dr. Jerdon's No. 30, which is *A. hastata*. I have never seen a Burmese example of this species, and I therefore think it advisable to quote Dr. Jerdon's description of this Eagle, as it apparently refers to the bird which Mr. Blyth had in mind.

The Lesser Spotted Eagle is no doubt not uncommon in Arrakan, for it is found over the greater part of the Indian peninsula. All the Spotted Eagles I procured in Burmah, however, are referable to the preceding species.

A very interesting and full description of the changes of plumage of this Eagle is given by the late Mr. Anderson (*l. c.*), but I regret that it is much too long for me to quote.

Genus NISAËTUS, *Hodgs.*

564. NISAËTUS PENNATUS.

THE BOOTED HAWK EAGLE.

Falco pennatus, *Gm. Syst. Nat.* i. p. 272. **Aquila pennata**, *Jerd. B. Ind.* i. p. 62; *Dresser, Birds Eur.* v. p. 481, pl. **Hieraëtus pennatus**, *Hume, Rough Notes*, p. 182; *id. Nests and Eggs*, p. 32; *Bl. B. Burm.* p. 63; *Gurney, Ibis*, 1877, p. 419; *Hume & Dav. S. F.* vi. p. 11; *Hume, S. F.* viii. p. 82; *Oates, S. F.* x. p. 179. **Nisaëtus pennatus**, *Sharpe, Cat. Birds B. Mus.* i. p. 253; *Hume, S. F.* iii. p. 25; *Legge, Birds Ceylon*, p. 40.

Description.—*Adult female.* Above brown, the scapulars with a purplish shade, some of the highest plumes of the latter pure white, forming a shoulder-patch, the lowest broadly bordered with buffy white, as also are all the wing-coverts; lesser and median coverts slightly shaded with pale fawn-colour, the greater ones purplish brown, with a broad edging of buffy white; quills blackish, secondaries purplish brown, terminally margined with buffy white, the innermost very pale whity brown; lower surface of quills dark brown, inclining to ashy white near base of inner web, the secondaries indistinctly barred with dull whitish; lower back and rump dark purplish brown; the upper tail-coverts dull fawn-brown, shading into buffy white on their margins and tips; tail dull sepia-brown, slightly shaded with ashy and tipped with dull white, crossed with four or five indistinct bars of darker brown, the feathers inclining to dark brown towards the tips, but not forming a distinct subterminal band; head and neck fawn-colour, with lanceolate central streaks of dark brown, the cheeks streaked distinctly with blackish; frontal plumes whitish; under surface of body buffy white, the throat and chest inclining to dull fawn-colour, the throat broadly streaked with black down the centre; the chest also streaked with dark brown, becoming narrower on the breast, and disappearing on the abdomen, thighs and under tail-coverts; under wing-coverts white, scarcely streaked with dark brown shaft-lines, the greater ones with large blackish spots; cere and gape bright wax-yellow; bill bluish black, pale blue at base; feet pale wax-yellow; iris pale brown. Total length 24 inches, culmen 1·7, wing 16·5, tail 10, tarsus 2·8.

Adult male. Smaller than the female. Total length 19 inches, wing 13·7, tail 8, tarsus 2·4.

Young. Differs from the adult in the colour of its under surface, which is entirely dull brown, with distinct black shaft-lines, the thighs and under tail-coverts a little more sandy, the tarsal feathers buffy white; upper surface purplish brown, the scapulars and wing-coverts lighter than the back and broadly edged with whitish, the upper tail-coverts almost

entirely whitish; uppermost scapulars white, forming a larger patch than in the adult; head dull fawn, not so rufous as in the old bird, distinctly streaked with black, the cheeks and throat strongly inclining to dark brown; quills and tail much as in the adult. (*Sharpe*.)

I have never seen a specimen of this Eagle from Burmah, and I consequently prefer to quote Mr. Sharpe's description to writing one of my own.

The Booted Hawk Eagle has occurred several times in Burmah. Mr. Blyth records it from Moulmein, and Mr. Gurney states that there is a specimen in the Norwich Museum from that town, probably the same bird which came under Mr. Blyth's notice. Capt. Feilden speaks of it as occurring at Thayetmyo; and from his account I should judge it to be rather common there, but I never myself met with it. Mr. Davison procured a solitary specimen at Thatone in Tenasserim, and I do not know of any other instances of its occurrence in Burmah.

It is found in India and ranges into Europe and Africa.

This Eagle in India is generally found in gardens and cultivated land. Capt. Feilden observed it on trees in paddy-fields, and also near the parade-ground of Thayetmyo seated in the centre of moderate-sized trees in full foliage. He adds that they were tame and easily shot.

Genus NEOPUS, *Hodgs.*

565. NEOPUS MALAYENSIS.

THE BLACK EAGLE.

Falco malayensis, *Temm. Pl. Col.* 117. *Neopus malayensis*, *Jerd. B. Ind.* i. p. 65; *Hume, Rough Notes*, i. p. 187; *Beavan, P. Z. S.* 1868, pl. 34; *Sharpe, Cat. Birds B. Mus.* i. p. 257; *Bl. B. Burm.* p. 63; *Gurney, Ibis*, 1877, p. 423; *Legge, Birds Ceylon*, p. 47; *Hume & Dav. S. F.* vi. p. 11; *Hume, S. F.* viii. p. 82. *Onychaëtus malayensis*, *Salvad. Ucc. Born.* p. 4. *Heteropus malayensis*, *Hume, Nests and Eggs*, p. 33.

Description.—*Male and female.* All black; the tail barred with greyish brown above and with dull white below; the quills barred with white near their bases; the underparts very dark blackish brown; the upper tail-coverts brown with a few white bars.

The young bird appears to be brown above, with buffy white spots at the tips of the coverts and secondaries; tail-coverts broadly tipped with white; the head with ochraceous margins; the cheeks and throat buffy

ochre; the lower* plumage rich buffy ochre with dark margins, giving a striped appearance.

Cere, gape and feet deep yellow; bill greenish horny, black at the tip; irides dark brown. (*Jerdon.*)

Length 27 inches, tail 13·5, wing 22, tarsus 3·5, bill from gape 2. The female is larger: length 31 inches, wing 24.

The Black Eagle may be recognized by the peculiar formation of its foot, the outer toe being very small and the inner one nearly as long as the middle toe.

Mr. Blyth states that this Eagle occurs in Tenasserim, and Mr. Davison observed one on Mooleyit mountain. It has not yet been discovered in Arrakan and Pegu.

It extends into India and Ceylon, and it ranges down the Malay peninsula to Sumatra, Java, Borneo and some of the further islands; and Dr. Tiraud records it from Cochin China.

It frequents deep forests in mountainous countries, and is said to make its nest on the face of a cliff, laying three eggs.

Genus SPIZAËTUS, *Vieill.*

566. SPIZAËTUS ALBONIGER.

BLYTH'S HAWK EAGLE.

Nisaëtus alboniger, *Bl. J. A. S. B.* xiv. p. 173. *Spizaëtus nanus*, *Wall. Ibis*, 1868, p. 14, pl. 1. *Spizaëtus alboniger*, *Salvad. Ucc. Born.* p. 14; *Sharpe, Cat. Birds B. Mus.* i. p. 271; *Bl. B. Burm.* p. 63; *Hume & Dav. S. F.* vi. p. 13 *Hume, S. F.* viii. p. 82.

Description.—*Adult.* Above black, with an occipital crest 2·75 inches in length, the latter tipped with white; quills dark brown, narrowly tipped with whitish, crossed with bands of black, the subterminal one very broad; tail ashy brown, with two bands of black—one basal, the other subterminal; lores whitish, the sides of the face black, like the crown; a broad moustachial streak of black; under surface of body white, the breast plainly marked with large drops of black, the belly and thighs thickly banded with black, the abdomen and under tail-coverts a little more broadly; under wing-coverts white, sparingly barred with black. Total length 22·5 inches, culmen 1·4, wing 13, tail 9·5, tarsus 3·3.

Young. Above pale brown, the back, scapulars and small wing-coverts darker, the greater coverts, scapulars and upper tail-coverts tipped with

white; head and neck fawn-brown, the nuchal feathers rather darker in the centre; an occipital crest (1·95 inch long) black, with broad white tips to the feathers; sides of face pale fawn-colour; under surface of body buffy white, with a tinge of fawn-colour on the breast, a little deeper on the thighs, some of the flank-feathers brownish; under wing-coverts buffy white; quills brown, the primaries blackish, indistinctly barred with darker brown, not very plain below, where the inner lining of the wing is glossy white; tail brown, tipped with whitish and crossed with three bands of blackish brown, the subterminal one much the broadest. Total length 19·5 inches, wing 11·2, tail 9, tarsus 3. (*Sharpe*.)

I have never met with this species, and I consequently prefer to give Mr. Sharpe's description.

Blyth's Hawk Eagle has been known to occur at Mergui and at Bankasson in Tenasserim.

It ranges down the Malay peninsula, and is found in Borneo.

567. SPIZAËTUS LIMNAËTUS.

THE CHANGEABLE HAWK EAGLE.

Falco limnæetus, *Horsf. Trans. Linn. Soc. xiii. p. 138.* **Falco caligatus**, *Raffl. Trans. Linn. Soc. xiii. p. 278.* **Falco niveus**, *Temm. Pl. Col. 127.* **Limnaëtus niveus**, *Jerd. B. Ind. i. p. 70.* **Spizaëtus caligatus**, *Hume, Rough Notes, i. p. 198; id. Nests and Eggs, p. 37; id. S. F. iii. p. 27; Armstrong, S. F. iv. p. 297.* **Spizaëtus limnaëtus**, *Salvad. Ucc. Born. p. 15; Sharpe, Cat. Birds B. Mus. i. p. 272; Bl. B. Burm. p. 63; Hume & Dav. S. F. vi. p. 11.* **Limnaëtus caligatus**, *Gurney, Ibis, 1877, p. 425; Hume, S. F. viii. p. 82; Bingham, S. F. ix. p. 143; Oates, S. F. x. p. 179; Kelham, Ibis, 1881, p. 366.*

Description.—*Male and female. Young bird of the year.* The head, neck and the whole lower plumage white, the feathers of the crown brown-shafted; a few of the feathers of the breast with narrow central dark streaks; a few brown dashes on the sides of the body; tibial plumes barred with pale fawn; wings, tail and upper plumage dark brown; the quills with a good deal of white at the bases of the inner webs; the tail barred with five or six bars of darker brown.

At *another stage* the lower plumage becomes more streaked and the head is tinged with buff; the thighs are more distinctly barred; the primaries have some silver-grey on the centre of the outer webs, and the tail-bands are better defined. When older still, the lower plumage is thickly dashed with dark brown, and there is a distinct stripe down the chin and throat; the thighs and tarsi are very closely and distinctly barred with fulvous; the head and upper neck are tinged with fulvous and thickly

streaked with dark brown ; there are five very dark bars on the tail, the last one about one and a half inches broad, and all the feathers are tipped with white ; the upper plumage and scapulars are dark glossy brown.

“*Adult.* Above and below deep chocolate-brown, inclining to blackish on the head and back, the quills and tail blackish, the shafts of the latter brownish, the inner webs of the quills clear ashy ; tail-feathers below ashy white, brownish towards the tips, the penultimate ones with remains of irregular cross markings.” (*Sharpe.*)

Iris brown, turning to orange-yellow ; eyelids plumbeous ; mouth flesh-colour ; bill black, the gape bluish ; cere dark brown ; feet yellowish green to pale yellow ; claws black.

Length 26 inches, tail 12, wing 15·5, tarsus 4·3, bill from gape 1·7. The female is larger.

The above descriptions of the immature birds are taken from a series of specimens shot in Pegu ; the plumage of the adult, which appears to be less seldom met with, from Mr. Sharpe’s Catalogue.

The Changeable Hawk Eagle is generally distributed over the whole of British Burmah, being more common in the northern part of Pegu than elsewhere.

It extends through the Indo-Burmese countries into India, where it is found in Bengal and the Eastern Himalayas ; and it occurs in the Malay peninsula, Sumatra, Java and Borneo.

This handsome bird frequents forests, especially those at the foot of mountain-ranges. It is very abundant in the valleys near Thayetmyo, where it breeds in April and May, making a nest of sticks near the top of a high tree.

Genus SPILORNIS, *Gray.*

568. SPILORNIS CHEELA.

THE CRESTED SERPENT-EAGLE.

Falco cheela, *Lath. Ind. Orn.* i. p. 14. **Hæmatornis undulatus**, *Vigors, P. Z. S.* 1831, p. 170. **Spilornis cheela**, *Jerd. B. Ind.* i. p. 77 ; *Hume, Rough Notes*, i. p. 222 ; *id. Nests and Eggs*, p. 40 ; *Sharpe, Cat. Birds B. Mus.* i. p. 287 ; *Hume, S. F.* iii. p. 28 ; *Bl. B. Burm.* p. 60 ; *David et Oust. Ois. Chine*, p. 21 ; *Wardlaw Ramsay, Ibis*, 1877, p. 454 ; *Gurney, Ibis*, 1878, p. 89 ; *Hume & Dav. S. F.* vi. p. 14 ; *Hume, S. F.* viii. p. 82. **Spilornis undulatus**, *Oates, S. F.* x. p. 179.

Description.—*Male and female.* Upper head and crest deep black ; the bases of the feathers white and showing up conspicuously, the tips of some mottled with fulvous ; plumage above hair-brown ; the upper wing-

coverts slightly tipped with white, and the upper tail-coverts both spotted and tipped with white; quills dark brown tipped with white, each quill with a lighter brown patch a couple of inches from the tip, and with white patches on the inner web; tail brown at base, the remainder black with a dusky white bar, each feather tipped white; chin, throat and ear-coverts brown; breast hair-brown, with close irregular narrow bars of a darker shade; remainder of the lower parts the same, but with white ocelli which become broken bars near the legs and tail-coverts; under wing-coverts beautifully ocellated with white. There are variations: the throat, cheeks and ear-coverts are frequently streaked with dark brown or black; the wing-coverts are profusely spotted with white in some, hardly at all in others; the scapulars are sometimes tipped with white, and the abdomen sometimes has a rich tawny tinge.

Legs dull yellow; claws black; iris bright yellow; orbital skin greenish yellow; cere greener; bill plumbeous, dusky at tip; mouth bluish.

Length 26 inches, tail 11·5, wing 17·5, tarsus 4, bill from gape 1·8. The female is considerably larger, the length being about 28 and the wing 18·5.

I have observed the Crested Serpent-Eagle only in the northern portion of Pegu from Thayetmyo to Tonghoo; but Capt. Wardlaw Ramsay states that it is common in Burmah, and that its melancholy whistle may be heard in every jungle in the plains. I think, however, that he may have made this statement under the impression that the present and the next species were not worthy of separation.

It extends through the Indo-Burmese countries into India, and is found over the greater part of that peninsula. It is also recorded from China.

This handsome Eagle, characterized by its beautiful ocellated plumage, is an inhabitant of clearings and the outskirts of forests where there are swamps or pools of water. It feeds almost entirely on small snakes. It makes a nest in trees, laying, as a rule, only one egg.

569. SPILORNIS RUTHERFORDI.

RUTHERFORD'S SERPENT-EAGLE.

Spilornis rutherfordi, *Swinh. Ibis*, 1870, p. 85; *Bl. B. Burm.* p. 60; *Hume, S. F.* iii. p. 28; *David et Oust. Ois. Chine*, p. 22; *Gurney, Ibis*, 1878, p. 93; *Hume & Dav. S. F.* vi. p. 14; *Hume, S. F.* viii. p. 82; *Bingham, S. F.* ix. p. 144; *Oates, S. F.* x. p. 179. *Spilornis melanotis*, *Sharpe, Cat. Birds B. Mus.* i. p. 289.

Description.—*Male and female.* Precisely similar to *S. cheela*, but smaller.

A young bird, shot in March and probably a year old, had the crown and nape pale fulvous-white, each feather with a black spot near the tip;

on the neck the spots gave place to subterminal bars, and the longer feathers were tipped with bright fulvous, forming a conspicuous collar; the feathers of back very dark brown, with a small white spot at the tip of each web; lower back, rump and upper tail-coverts rich fulvous-brown, each feather tipped white, and the rump-feathers with, in addition, indistinct white ocelli on both webs; scapulars and wing-coverts paler than in the adult; the whole lower surface white tinged with pale fulvous, the shafts of the feathers rich brown; a broad irregular hair-brown band across the breast, barred narrowly with paler brown; a few patches on the flanks turning into the adult ocellated plumage; under wing-coverts light buff with darker centres.

Length 24 inches, tail 10·5, wing 16·5, tarsus 3·7, bill from gape 1·8. The female is proportionately larger.

Mr. Sharpe unites this species to *S. melanotis* of Southern India; Mr. Hume keeps them distinct. Pending a settlement of the vexed question of the number of species of these smaller Serpent-Eagles, it is perhaps advisable to keep *S. rutherfordi* distinct for the present.

Rutherford's Serpent-Eagle is generally spread over Pegu and Tenasserim; it extends to Siam, Cochin China and China.

This Eagle is tolerably abundant in swampy forests and wooded tracts. It does not differ in habits from the preceding species.

Genus BUTASTUR, *Hodgs.*

570. BUTASTUR TEESA.

THE WHITE-EYED BUZZARD-EAGLE*.

Circus teesa, *Frankl. P. Z. S.* 1831, p. 115. *Poliornis teesa*, *Jerd. B. Ind.* i. p. 92; *Hume, Rough Notes*, ii. p. 283; *id. Nests and Eggs*, p. 49; *id. S. F.* iii. p. 31; *Bl. & Wald. B. Burm.* p. 61. *Butastur teesa*, *Sharpe, Cat. Birds B. Mus.* i. p. 295; *Hume & Dav. S. F.* vi. p. 19; *Hume, S. F.* viii. p. 82; *Oates, S. F.* x. p. 180.

Description.—*Male and female.* Upper plumage brown with a reddish tinge and with dark shaft-stripes; the nape more rufescent, with a white patch; forehead white; ear-coverts hair-brown; throat white, with a mesial dark brown stripe, and a cheek-stripe of the same colour on either side; breast dark brown with rufescent edges; lower breast, abdomen, flanks and vent brown, banded with buffy white; thighs and under tail-

* The birds of this genus are not Buzzards; but I may state that in difficult cases like the present I have adopted the trivial names for the species of Birds of Prey given by Mr. Bowdler Sharpe in the public gallery in the British Museum.

coverts buffy white, the latter with some brown streaks; tail pale rufous, with narrow brown bands; upper wing-coverts mottled white and brown; quills brown, inclining to black at the tips, barred on the inner webs with darker brown and tipped with whitish; axillaries brown.

The *young* have the top of the head and nape white, the former with hair-brown shaft-stripes; the stripes on the throat and its sides indistinct; tail less rufescent and the bars less distinct; other parts as in the adult.

Legs orange-yellow; claws black; cere and gape orange or bright yellow; base of bill and gape orange or yellow; remainder of bill black; iris stone-white or greyish yellow; eyelids yellow or greenish yellow.

Length 15·7, 16·5 inches; tail 6·4, 7·3; wing 11, 11·5; tarsus 2·4, 2·6; bill from gape 1·3. The first measurements are those of the male.

As far as my own experience goes, the White-eyed Buzzard-Eagle is restricted to the northern portion of Pegu, from Thayetmyo down to Prome, and to Tonghoo. Both Dr. Armstrong and Mr. Davison, however, procured it at Thatone in Northern Tenasserim; and it is therefore probably diffused over the whole of Pegu as a rare species. Mr. Blyth states that it is common near Amherst.

It extends into India, where it is found over the greater part of the peninsula.

This species is found in paddy-land and low jungle, feeding on crabs, frogs and small mammals. It breeds in India during April, making a nest of sticks in a tree, and laying three bluish-white eggs.

571. BUTASTUR LIVENTER.

THE GREY-BREASTED BUZZARD-EAGLE.

Falco liventer, Temm. *Pl. Col.* 438. **Poliornis liventer**, Salvad. *Ucc. Born.* p. 9; *Hume, Nests and Eggs*, p. 50; *id. S. F.* iii. p. 31; *Bl. & Wald. B. Burm.* p. 61; *Armstrong, S. F.* iv. p. 299. **Butastur liventer**, Sharpe, *Cat. Birds B. Mus.* i. p. 296; *Hume & Dav. S. F.* vi. p. 21; *Oates, S. F.* v. p. 142, vii. p. 40; *Hume, S. F.* viii. p. 82; *Oates, S. F.* x. p. 180.

Description.—*Male.* Whole head and neck grey; the throat with an admixture of white; the crown and neck with dark narrow streaks; breast and abdomen dark grey, with the shafts darker; lower abdomen and vent rufescent grey, barred with white; thighs and under tail-coverts white; back and upper scapulars reddish brown with dark centres; lower scapulars chestnut; rump and upper tail-coverts rather bright chestnut with dark shafts; tail chestnut, tipped with whitish and interruptedly

barred with black; quills chestnut broadly tipped with dark brown, and a portion of the inner webs margined with white; the inner webs of the primaries and both webs of the secondaries barred with dark brown; wing-coverts mixed rufous and white; under wing-coverts pale chestnut barred with brown.

The *female* is like the male, but the rump is of a duller chestnut and the head and nape are darker.

The plumage does not vary much in this species; the colours increase in brilliancy with age, and the bars on the tail, which are very distinct in the young bird, become much interrupted in the adult. In the young the white bars extend to the middle of the abdomen; the edge of the wing is white; the breast is brown, and the throat, lores, and forehead nearly pure white; the crown is rufous with dark brown stripes; and the whole plumage, where grey in the adult, inclines to brown in the young.

Eyelids and skin over the eye orange-yellow; iris yellow; gape, bill and cere orange; the tips of both mandibles brown; mouth flesh-colour; legs yellow; claws dark horn.

Length 15·5 inches, tail 6, wing 11, tarsus 2·5, bill from gape 1·35. The female is rather smaller than the male, and not, as might be expected, larger.

The Grey-breasted Buzzard-Eagle is abundant over the whole of Pegu. It appears to be somewhat rare in Tenasserim, and Mr. Davison did not observe it south of Amherst, nor did Capt. Bingham meet with it further east in the Thoungyeen valley.

It occurs in Siam, and it has been recorded from Java, Timor, Borneo and Celebes.

This richly-coloured bird frequents the same sort of jungle as the preceding, being found in open country and the banks of rivers. It feeds on snakes and crabs. I found the nest in March on two occasions—small structures of sticks placed in low mango trees and containing two eggs, which were pale greenish white in colour.

572. BUTASTUR INDICUS.

THE GREY-FACED BUZZARD-EAGLE.

Falco indicus, *Gm. Syst. Nat.* i. p. 264. **Falco poliogenys**, *Temm. Pl. Col.* 325. **Poliornis poliogenys**, *Hume, Rough Notes*, ii. p. 290. **Poliornis indica**, *Salvad. Ucc. Born.* p. 9; *Bl. B. Burm.* p. 61. **Butastur indicus**, *Sharpe, Cat. Birds B. Mus.* i. p. 297; *David et Oust. Ois. Chine*, p. 18; *Hume & Dav. S. F.* vi. pp. 19, 497; *Hume, S. F.* viii. p. 82.

Description.—*Adult.* Above brown, inclining to ashy on the head and upper back, and to rufous on the lower back, rump and upper tail-coverts,

the latter of which are plainly barred and broadly tipped with pure white; forehead white; sides of face clear ashy grey; sides of neck ashy brown, uniform with the interscapular region; wing-coverts rufous-brown, mottled with clearer rufous; primary-coverts rufous, externally mottled and broadly tipped with black; quills rufous, narrowly tipped with buffy white; primaries brown externally and towards their tips, also barred with dark brown on their inner webs; the secondaries ashy brown, inclining gradually to whitish brown at their tips, washed with rufous and barred with dark brown; the lower surface of the wing creamy white on the inner webs of the quills, somewhat washed with rufous; tail ashy brown, whitish brown at tip and crossed with three or four broad bars of blackish brown; the lower surface ashy white, the bars showing more plainly, except on the outermost feather, where they are obsolete; throat white, with a mesial line of ashy brown, as well as two not very distinct moustachial streaks; upper breast ashy brown washed with rufous; the lower breast and abdomen barred with white and rufous-brown, the latter bars decreasing towards the vent and thighs and totally absent on the under tail-coverts; under wing-coverts with slight cross markings of pale rufous. (*Sharpe*.)

In younger birds the cheeks and ear-coverts are a darker grey; the occiput, nape and sides of the neck are dark grey-brown streaked with rufous; the mantle is a nearly pure hair-brown; the throat is much more tinged with buff; the breast is darker and more mottled; and the rusty rufous is wanting on the wing.

In a still younger bird the entire crown, occiput, nape and sides of the neck are mingled darker and lighter brown, ferruginous and buffy white, and the cheeks are streaked with white and the ear-coverts are streaked paler; the feathers of the breast are buffy white with lanceolate rufous-brown shaft-stripes; the brown of the abdomen is darker; and the bars on the tail are much less conspicuous, while the bars on the tibial plumes are almost heart-shaped. (*Hume*.)

The irides bright yellow; legs and feet bright yellow; claws black; cere, gape, greater portion of lower mandible, upper mandible to 0.25 beyond nostril and eye-shelf orange-yellow; rest of bill black. (*Davison*.)

Length about 17 inches, tail 7.6, wing 13.5, tarsus 2.2, bill from gape 1.4. The female is of about the same size.

The above descriptions, taken from Messrs. Sharpe and Hume's writings, give a very clear idea of the changes of plumage that this species undergoes.

The Grey-faced Buzzard-Eagle is found in Tenasserim from Amherst southwards, but it does not appear to be anywhere common. My men procured one specimen at Maleewoon in the extreme south of the Division.

It occurs down the Malay peninsula and is found in Java, Borneo, Celebes and the Philippine Islands, and it extends through China to Japan. Père David states that it breeds in the mountains of Pekin.

Genus HALIAËTUS, *Savigny*.

573. HALIAËTUS LEUCOGASTER.

THE WHITE-BELLIED SEA-EAGLE.

Falco leucogaster, *Gm. Syst. Nat.* i. p. 257. **Haliaëtus leucogaster**, *Jerd. B. Ind.* i. p. 84; *Sharpe, Cat. Birds B. Mus.* i. p. 307; *Legge, Birds Ceylon*, p. 67; *Hume & Dav. S. F.* vi. p. 17; *Hume, S. F.* viii. p. 82; *Oates, S. F.* x. p. 180. **Cuncuma leucogaster**, *Hume, Rough Notes*, ii. p. 259; *id. Nests and Eggs*, p. 48; *Salvad. Ucc. Born.* p. 5; *Hume, S. F.* ii. p. 149; *id. S. F.* iv. pp. 422, 461; *Armstrong, S. F.* iv. p. 298. **Blagrus leucogaster**, *Bl. B. Burm.* p. 64.

Description.—*Male and female.* The whole head, neck and lower plumage white; tail black, broadly tipped with white; primaries and secondaries blackish, the outer webs of the former washed with grey; back, rump, upper tail-coverts, wing-coverts, scapulars and tertiaries ashy grey.

The young bird has those parts brown which are ashy grey in the adult, and the white portions of the plumage tinged with fulvous; the white band at the end of the tail is absent, the whole tail being dark brown marked with paler brown.

Irides light brown; cere and gape leaden grey; upper mandible dusky brown, shading into a greyish blue towards its junction with the cere; lower mandible bluish grey, tipped with dusky brown; legs and feet dirty yellowish white; claws black. (*Armstrong*.)

Length about 28 inches, tail 10, wing 22, tarsus 4, bill from gape 2.5. The female is rather larger.

The White-bellied Sea-Eagle is found in more or less abundance along the whole coast of Burmah, and also up the larger rivers for a distance of sixty miles or so.

It is met with on the coasts of India and Ceylon, the Malay archipelago and islands to Australia and the Pacific Ocean.

This Eagle is entirely a maritime species, being apparently never, or very seldom indeed, found near fresh water. Its food is chiefly sea-snakes. It makes a large stick nest on high trees and lays two eggs. Mr. Hume observed a vast number of these Eagles breeding on Pigeon Island off the west coast of India.

574. *HALIAËTUS LEUCORYPHUS*.

MACE'S SEA-EAGLE.

Aquila leucorypha, *Pall. Reis. Russ. Reichs*, i. p. 454. *Falco fulviventor*, *Vieill. Nouv. Dict. d'Hist. Nat.* xxviii. p. 283. *Falco macei*, *Temm. Pl. Col.* 8 & 223. *Haliaëtus fulviventor*, *Jerd. B. Ind.* i. p. 82; *David et Oust. Ois. Chine*, p. 14. *Haliaëtus leucoryphus*, *Hume, Rough Notes*, ii. p. 242; *Sharpe, Cat. Birds B. Mus.* i. p. 308; *Dresser, Birds Eur.* v. p. 545, pl.; *Gurney, Ibis*, 1878, p. 454; *Anders. Yunnan Exped.* p. 573; *Oates, S. F.* v. p. 142; *Hume & Dav. S. F.* vi. p. 17; *Hume, S. F.* viii. p. 82; *Scully, S. F.* viii. p. 225; *Oates, S. F. x.* p. 179. *Haliaëtus macei*, *Hume, Nests and Eggs*, p. 45.

Description.—*Male and female.* Forehead whitish; crown, neck and upper back sandy brown, darker on the crown and inclining to tawny on the neck, where the feathers are long and pointed; remainder of the upper plumage and wings dark brown; a few of the wing-coverts edged with fulvous-brown; tail black at the base, then white for about $4\frac{1}{2}$ inches and tipped black; cheeks, ear-coverts, chin, throat and fore neck buffy white, varying in tint from almost pure white to fulvous according to age. The whole under plumage dark fulvous-brown, most of the feathers edged paler, and those on the sides of the body almost black; under wing-coverts blackish brown.

A *young male* had the cheeks and ear-coverts mottled and streaked with brown; and that part of the tail which is white in the adult was marked with dusky.

Iris greyish yellow; cere and gape light plumbeous; bill dark plumbeous; lower eyelid pale greenish, upper one bluish; legs and toes dull white; claws black.

Length 32 inches, tail 12·2, wing 23, tarsus 4, bill from gape 2·65. The female is larger, having the wing about 24.

Mace's Sea-Eagle is very abundant in the plains of Southern Pegu, between the Pegu and Sittang rivers, where the country is cut up by tidal creeks and there are clumps of trees to afford it a nesting-place. I have never met with it in any other part of Burmah. Mr. Davison procured it at Thatone on the east of the Sittang river, where the country is very similar to that on the west of the river.

It extends through the Indo-Burmese countries into India, where it is found in the northern portion of the peninsula, and thence onwards to South-eastern Europe. It occurs also in China and Cochin China.

This fine Eagle frequents the swampy grassy plains lying to the east of the Pegu river, where it is very common and where its loud shrieking call may be heard every morning. It feeds principally on fish. I found many nests in November, December and January. The structure is very large

and made of sticks, and it is used by the same birds year after year. It is generally situated near the summit of a tall tree on the banks of a creek. The eggs, three in number, are dull white.

Genus HALIASTUR, *Selby*.

575. HALIASTUR INDUS.

THE BRAHMINY KITE.

Falco indus, *Bodd. Tabl. Pl. Enl.* p. 25. **Haliastur indus**, *Jerd. B. Ind.* i. p. 101; *Hume, Rough Notes*, ii. p. 316; *id. Nests and Eggs*, p. 51; *Sharpe, Cat. Birds B. Mus.* i. p. 313; *Hume, S. F.* iii. p. 35; *Bl. B. Burm.* p. 64; *Oates, S. F.* v. p. 142; *David et Oust. Ois. Chine*, p. 15; *Legge, Birds Ceylon*, p. 76; *Gurney, Ibis*, 1878, p. 460; *Hume & Dav. S. F.* vi. p. 22; *Cripps, S. F.* vii. p. 251; *Hume, S. F.* viii. p. 82; *Scully, S. F.* viii. p. 227; *Bingham, S. F.* ix. p. 145; *Oates, S. F.* x. p. 181.

Description.—*Male and female.* Head, neck, upper back, breast and upper abdomen white, each feather with a distinct dark shaft-line; the first six primaries with the basal half chestnut and the terminal half black; with these exceptions the whole plumage is chestnut, darkest on the back and palest on the tail, which is albescent at the tip; the shafts of all the feathers except those of the tail are very dark brown.

The *young* have the head, neck and lower parts pale rufous-white, the shaft-lines distinct and the feathers centred paler; the back, rump and upper tail-coverts are dark brown strongly tinged with maroon; the tail is brown, tipped fulvous; the quills are dark brown, inclining to rufous at the base of the inner webs; the upper wing-coverts fulvous-brown. In December birds may be found in every stage of plumage, with a mixture of old and new feathers, the young being then in the act of assuming the adult plumage previously to breeding.

Iris brown; bill and cere dark brown; legs greenish yellow.

Length 18 inches, tail 7, wing 15, tarsus 2, bill from gape 1.4. The female is considerably larger.

The Brahminy Kite is found abundantly over the whole of British Burmah except in the thick forests of the higher hills.

It extends to India and China, and is also found in Cochin China and a portion of the Malay peninsula. To the south it is replaced by *H. intermedius*, a very closely allied race, in which the shaft-stripes on the head and breast are narrower and less distinct.

This well-known bird is a constant resident in Burmah and extremely

common near all villages and fisheries. It breeds from December to February, making a large nest in a tree and laying two or three eggs, which are white blotched with reddish brown.

Genus MILVUS, *Cuvier*.

576. MILVUS AFFINIS.

THE SMALLER HOUSE-KITE.

Milvus affinis, Gould, *P. Z. S.* 1837, p. 140; *Hume, S. F.* i. p. 160; *Salvad. Ucc. Born.* p. 10; *Sharpe, Cat. Birds B. Mus.* i. p. 323; *Hume, S. F.* iii. p. 35; *Wald. in Bl. B. Burm.* p. 64; *Armstrong, S. F.* iv. p. 299; *Oates, S. F.* v. p. 142; *Davison, S. F.* v. p. 453; *Hume & Dav. S. F.* vi. p. 23; *Gurney, Ibis*, 1879, p. 77; *Hume, S. F.* viii. p. 82; *Scully, S. F.* viii. p. 228; *Bingham, S. F.* ix. p. 145; *Oates, S. F.* x. p. 181.

Description.—*Male and female.* The whole plumage dark brown, paling on the head and the upper wing-coverts; each feather with a distinct shaft-stripe; chin and throat whitish, with very distinct shaft-stripes; tail obsoletely barred with dark brown on the central rectrices and the outer webs of the others, more plainly on the inner webs; the earlier primaries black, mottled with white at their bases on the inner webs; remaining primaries and the other quills of the wing brown, more or less mottled with white at their bases and likewise slightly barred with darker brown; the under wing-coverts brown margined with rufous; ear-coverts and feathers behind the eye blackish brown.

The *young* are rather darker brown than the adult, each feather of the whole plumage tipped with pale buff; the shaft of each feather is black, and on the lower plumage there is a buff streak on either side of the black shaft, giving a conspicuous streaked appearance to the bird; wing as in the adult, but the white mottling less distinct.

The above descriptions are taken from a large series of birds collected in Pegu. From the fact that there are no birds intermediate in plumage between the young just fledged and the fully adult, it is probable that the young bird passes into adult plumage in the autumn succeeding its birth.

Iris hazel-brown; mouth flesh-colour; legs pale lemon-yellow; claws black; gape, cere and bill as far as the nostrils pale yellow; the remainder of the bill black; eyelids and ocular region bluish grey.

Length 23 inches, tail 12, wing 16·5, tarsus 2, bill from gape 1·5. The female is rather larger.

Mr. Blyth gives *M. govinda* from Burmah and states that it is common in the cold season. There is little doubt, I think, that Mr. Blyth did not consider *M. affinis* worthy of separation from *M. govinda*. No specimen of this latter has ever been procured in Burmah so far as I am aware. At one time I thought that *M. govinda* did occur in Pegu; but I am now of opinion that all the specimens I procured in that Division are referable to the smaller *M. affinis*. These two Kites are not always easy to separate: *M. affinis* is, as a rule, smaller, and has barely any white under the wing; and I am not aware that any other differences between the two species have ever been pointed out.

The Smaller House-Kite is generally distributed over the Province, being rare only in the southern half of Tenasserim.

It extends through the Indo-Burmese countries into India and is found over a considerable portion of that country. It ranges down the Malay peninsula, and occurs in all the islands as far as Australia.

This common Kite is generally found in the neighbourhood of houses and also of isolated huts in the jungle where garbage is abundant. It disappears from June to September, and its return is usually a sign that the rains are nearly over. It makes a nest of sticks in trees and lays three eggs, which are white blotched with rusty. The breeding-season lasts from January to March.

577. MILVUS MELANOTIS.

THE LARGE JUNGLE-KITE.

Milvus melanotis, Temm. et Schleg. *Faun. Jap.*, Aves, p. 14, pls. 5, 5 B; Sharpe, *Cat. Birds B. Mus.* i. p. 324; David et Oust. *Ois. Chine*, p. 16; Anders. *Yunnan Exped.* p. 574; Gurney, *Ibis*, 1879, p. 80; Hume, *S. F.* viii. p. 82; Oates, *S. F.* x. p. 181. **Milvus major**, Hume, *Rough Notes*, ii. p. 326; *id.* *Nests and Eggs*, p. 54; *id.* *S. F.* i. p. 160. **Milvus govinda**, *apud Brooks*, *S. F.* iii. p. 229.

Description.—*Male and female.* The whole body-plumage with the upper wing-coverts rufous-brown, each feather with a dark shaft-line, the portion adjacent to this line being paler than the other parts of the webs; scapulars brown, edged with rufous; secondaries, tertiaries and the later primaries brown, obsoletely barred and the bases mottled with white; earlier primaries black, each with a large patch of pure white on the inner web near the base; tail rufous, distinctly barred across with about eight lines of brown; ear-coverts blackish brown; vent and under tail-coverts plain fulvous.

Young. Head, neck, shoulders and lower plumage down to the abdomen dark brown, each feather with a longitudinal streak of buff down the

centre, the shafts being brown ; upper wing- and tail-coverts brown tipped with buff ; abdomen, vent, under tail-coverts and the thighs creamy buff, shading off into brown on the margins of the feathers ; scapulars and quills dark brown, all tipped with fulvous, the earlier primaries with a large patch of white on the inner webs and the other quills more or less mottled with white on the inner webs ; tail dark brown, tipped with fulvous white and obsoletely barred.

Bill bluish ; cere yellowish white ; iris hazel-brown ; legs dull china-white ; claws blackish.

Length 25 inches, tail 12·5, wing 18·5, tarsus 2·1, bill from gape 1·65. The female is considerably larger, the wing being about 21 inches and the tail 13·5.

The young bird is described from a nestling just able to fly procured in Ningpo by Mr. Swinhoe in May 1872 and now in Mr. Seeböhm's collection. It is not until the bird is very aged that it exhibits the rich rufous coloration described, and the majority of specimens are in brown plumage. The rufous appears first on the upper plumage, and the transition from the spotted young to the rufous adult is very gradual.

This species is of course very distinct from *M. affinis* ; but it is not always easy to separate it from specimens of the Indian species (*M. govinda*) until quite adult. As a rule, *M. melanotis* is very much larger and has a very extended patch of white at the base of the primaries on the underside of the wing. Some specimens from India, however, which from their size should be *M. govinda*, have nearly as much white on the wing as some specimens of *M. melanotis* from China ; but I have never seen a specimen of the former with the rich rufous coloration of adult *M. melanotis*.

The Large Jungle-Kite is common in the southern parts of Pegu, in the large grass-plains between the Pegu and Sittang rivers, from October to February, and probably till later.

It occurs in the Indo-Burmese countries and in the peninsula of India, and it ranges through China to Japan.

This large Kite, distinguishable at a glance when flying by the large patch of white on the underside of the wing, is of rather a shy nature, keeping to the jungles and to very small clusters of houses where large fishing-operations are carried on. In these latter places large numbers may be seen, and, if not molested, they are very tame, sitting on the roofs of houses and on the stakes of the fishing-nets. I have never met with its nest ; but as in India it breeds in the cold season, it will probably be found to breed in Burmah in January or February.

Genus ELANUS, *Savigny*.

578. ELANUS CÆRULEUS.

THE BLACK-SHOULDERED KITE.

Falco cæruleus, *Desf. Mém. Acad. Roy. des Sciences*, 1787, p. 503, pl. 15. **Falco melanopterus**, *Daud. Traité*, ii. p. 152. **Elanus melanopterus**, *Jerd. B. Ind.* i. p. 112; *Hume, Rough Notes*, ii. p. 338; *id. Nests and Eggs*, p. 56; *id. S. F.* i. p. 21, iii. p. 37; *Bl. B. Burm.* p. 60. **Elanus cæruleus**, *Sharpe, Cat. Birds B. Mus.* i. p. 336; *Dresser, Birds Eur.* v. p. 663, pl.; *David et Oust. Ois. Chine*, p. 17; *Legge, Birds Ceylon*, p. 85; *Anders. Yunnan Exped.* p. 572; *Hume & Dav. S. F.* vi. p. 26; *Gurney, Ibis*, 1879, p. 332; *Hume, S. F.* viii. p. 83; *Oates, S. F.* x. p. 181.

Description.—*Male and female*. Lores, forehead, eye-streak, lower plumage, axillaries and under wing-coverts white; a small patch in front of the eye and a narrow streak over the eye black; lesser wing-coverts black; the whole upper plumage and wings ashy grey, the tips of the primaries shaded with brown; central tail-feathers and the outer webs of the next pair ashy grey; the inner webs of these and the whole four outer pairs of feathers pure white.

The *young* have the upper plumage ashy brown with buffy tips; the greater coverts and quills are tipped with dull white; there are narrow rusty shaft-stripes on the breast and flanks.

Legs deep yellow; claws black; bill black; gape and cere pale yellow; iris crimson or orange-red; eyelids plumbeous.

Length 12·7 inches, tail 5·5, wing 10, tarsus 1·3, bill from gape 1·1. The female is about the same size as the male.

The Black-shouldered Kite appears to be generally distributed over Arakan and Pegu in the low-lying portions of the country. Mr. Davison did not observe it in Tenasserim, except in the northern portion near Thatone.

It ranges westwards through India into Southern Europe, and it occurs over the whole of Africa. To the east it ranges into China and Cochin China.

This small Kite appears to visit Pegu only in the rains. I observed it every year from July to about the middle of October. It was very common in the plains, which at that time of the year are inundated, between the Pegu and the Sittang rivers. It has the habit of hovering in the air like the Kestrel. In India it breeds from November to January, constructing its nest in a tree and laying three eggs, which are white blotched with rusty red.

Genus MACHÆRHAMPHUS, *Westerm.*

579. MACHÆRHAMPHUS ALCINUS.

THE SLENDER-BILLED PERN.

Machærhamphus alcinus, *Westerm. Bijd. tot d. Dierk.* i. p. 29, pl. 12; *Sharpe, Cat. Birds B. Mus.* i. p. 342; *Hume, S. F.* iii. p. 269; *Hume & Dav. S. F.* vi. p. 24; *Gurney, Ibis*, 1879, p. 466; *Hume, S. F.* viii. p. 83.

Description.—*Adult.* Everywhere black with a chocolate-brown shade; an ill-defined spot above and below the eye white; quills and tail also black, the shafts dull white underneath; throat and centre of chest white; the chin and a broad streak down the throat, as well as the sides of the latter and a few spots on the lower part, black. (*Sharpe.*)

Irides bright yellow; bill and claws black; legs and feet pale plumbeous. (*Davison.*)

Length 18·5 inches, tail 7·8, wing 14·2, tarsus 2·5, bill from gape 1·8.

The Slender-billed Pern is a very rare species about which little is known. Mr. Hough procured one specimen at Malewoon in Tenasserim, and Capt. Bingham informs me that he thinks he once saw it in the Thoungyeen valley.

It has been known to occur at Malacca, in Borneo and in New Guinea.

This species is probably crepuscular in its habits; and if this is the case its apparent scarcity is accounted for. An allied species in Africa feeds on Bats.

This Hawk has a remarkably narrow carinated bill, large eyes, a very wide gape and an elongated occipital crest.

Genus *PERNIS*, *Cuvier*.580. *PERNIS PTILORHYNCHUS*.

THE CRESTED HONEY-BUZZARD.

Falco ptilorhynchus, *Temm. Pl. Col.* 44. *Pernis cristata*, *Cuv. Règne Anim.* i. p. 335; *Jerd. B. Ind.* i. p. 103; *Hume, Rough Notes*, ii. p. 330. *Pernis brachypterus*, *Bl. J. A. S. B.* xxi. p. 436; *Hume, S. F.* iii. p. 36. *Pernis ptilorhynchus*, *Salvad. Ucc. Born.* p. 9; *Hume, Nests and Eggs*, p. 55; *Bl. B. Burm.* p. 60; *Anders. Yunnan Exped.* p. 571; *Hume & Dav. S. F.* vi. p. 23; *Hume, S. F.* viii. p. 82; *Gurney, Ibis*, 1880, p. 203; *Oates, S. F.* x. p. 181; *Kelham, Ibis*, 1881, p. 369. *Pernis ptilonorhynchus*, *Sharpe, Cat. Birds B. Mus.* i. p. 347; *Legge, Birds Ceylon*, p. 89.

Description.—*Young bird* brown above, the feathers more or less edged with lighter; head and neck usually paler, sometimes rufous-brown, at other times whitish, with central dark streaks more or less developed; beneath white, sometimes only faintly streaked, at times with large streaks, more rarely with large oval brown drops, and with or without a central dark chin-stripe and two lateral ones.

In a further stage the brown above becomes darker and more uniform, and the lower parts assume a pale rufous-brown tinge, with the central streak more or less developed according as it was in the young bird, and the incomplete tail-bands are more clouded.

The *adult* has the plumage above rich brown, the head and lores generally, but not always, suffused with ashy grey, and the lower parts uniform darkish brown, with the dark streak almost obliterated; the tail is brownish ashy, faintly clouded with dusky, and with two wide dark black bars, and a third almost concealed by the upper tail-coverts; the terminal bar is tipped white or greyish.

In most birds in a transition state the feathers of the lower parts are banded brown and white, especially on the lower abdomen, thigh-coverts, &c., and some of these feathers are generally to be found at all ages. (*Jerdon*.)

Iris bright yellow; cere and bill dark brown, bluish at the base of the lower mandible; legs yellow; claws dark horn-colour. Younger birds have the legs dull yellow.

Length 24 inches, tail 11, wing 16, tarsus 2, bill from gape 1.6, cere .5. The female is hardly larger than the male.

The variations of plumage of this bird are so great that a detailed description to embrace all the changes would be impossible. Dr. Jerdon's description appears to me to comprise in a brief form all that is necessary to be said.

P. ptilorhynchus differs from its European ally *P. apivorus* chiefly in possessing a crest; but most birds from Burmah appear to be somewhat

intermediate between the two species. I once shot a Honey-Buzzard with a crest one and a half inch long; but all the others (seven or eight) that I obtained in Burmah were crestless, except that in some the feathers of the occiput were slightly lengthened. On the whole, the Burmese birds appear to be referable to *P. ptilorhynchus*.

The Crested Honey-Buzzard is found in most of the parts of Pegu which are well wooded. I procured it on the Pegu hills between Thayetmyo and Tonghoo, at Thayetmyo, at Prome, Shwaygheen and near Pegu Town. Mr. Davison found it very rare in Tenasserim, and only two specimens were procured in that Division—one at Moulmein and one at Amherst. Mr. Blyth received a long-crested bird from Mergui, upon which he founded his *P. brachypterus*; but he afterwards cancelled this name. This Honey-Buzzard will probably be found to be abundant in Arrakan.

It occurs over the greater part of the Indian peninsula and Ceylon; it ranges down the Malay peninsula, and it is met with in Sumatra, Java, Borneo and Bangka, and also in Siam and Cochin China.

In the Malay peninsula another species occurs, which has recently been named *P. tweeddalii* by Mr. Hume.

This Honey-Buzzard frequents forests and groves of trees; its food is chiefly the larvæ of wasps and honey, and it also eats caterpillars and other insects. The nest is placed in trees, and the eggs are generally two in number, richly marked with red.

The Honey-Buzzards, notwithstanding their variations of plumage, may always be recognized by the lores being thickly covered with scale-like feathers.

Subfamily FALCONINÆ.

Genus BAZA, *Hodgs.*

581. BAZA LOPHOTES.

THE BLACK-CRESTED KITE-FALCON.

Falco lophotes, *Cuv., Temm. Pl. Col.* 10. **Baza lophotes**, *Jerd. B. Ind.* i. p. 111; *Hume, Rough Notes*, ii. p. 337; *Sharpe, Cat. Birds B. Mus.* i. p. 352; *Bl. B. Burm.* p. 60; *Legge, Birds Ceylon*, p. 98; *Hume & Dav. S. F.* vi. p. 24; *Hume, S. F.* viii. p. 83; *Bingham, S. F.* ix. p. 145; *Gurney, Ibis*, 1880, p. 471; *Kelham, Ibis*, 1881, p. 369.

Description.—*Male and female.* The whole upper plumage, wing-coverts and tail black; sides of the head and neck, chin, throat and fore neck black; breast white; below and next the breast a broad band of black; next this again, and occupying nearly all the abdomen, pale creamy buff barred with chestnut; sides of the body the same; lower abdomen, vent,

thighs and under tail-coverts black; scapulars white, broadly edged with black, which nearly conceals the white when the feathers are properly arranged; primaries and secondaries black; the later primaries and all the secondaries with a chestnut patch on the outer webs; tertiaries white at base, black at the ends, tinged with chestnut on the outer webs; under aspect of wing ashy.

The *young* do not appear to differ in any material respect from the adult except in being duller.

Male: cere dull blue; bill a lighter blue, shaded with horny at tip; iris lake-brown; legs and feet whitish blue; claws dark horny. *Female*: iris dark brown or purplish brown. (*Bingham, MS.*)

Male: length 12·55 inches, tail 5·8, wing 9·35, tarsus 1, bill from gape 1, crest 1·5. *Female*: length 13·2 inches, tail 6·2, wing 9·8, tarsus 1·1, bill from gape 1, crest 2·5.

The Black-crested Kite-Falcon is said by Mr. Blyth to occur in Arrakan and Tenasserim. In the latter Division Mr. Davison found it rare and apparently confined to the southern portion; but Capt. Bingham states that it is common in the Thoungyeen valley. I have never met with it in Pegu.

It occurs in India from Bengal down the east coast to Ceylon. On the south it has frequently been met with at Malacca; and Dr. Tiraud states that it is common in Cochin China.

This species frequents thick forests and appears to be more or less gregarious; it seats itself on the topmost branches of high trees and makes short sailing flights after insects. Nothing is known about its nidification so far as I am aware.

582. BAZA SUMATRENSIS.

THE SUMATRAN KITE-FALCON.

Aviceda sumatrensis, *Lafresn. Rev. Zool.* 1843, p. 210. *Baza sumatrensis*, *Sharpe, Cat. Birds B. Mus.* i. p. 357, pl. xi. fig. 1; *Hume, S. F.* iii. p. 313; *Hume & Dav. S. F.* vi. p. 25; *Hume, S. F.* viii. pp. 83, 444; *Gurney, Ibis*, 1880, p. 471. *Baza incognita*, *Hume, S. F.* iii. p. 314.

Description.—The forehead and a broad but inconspicuous band from the latter over the eyes to the nape pale whitish brown; the shafts darker brown; the crown, occiput, nape and sides of the neck rufescent buff, the feathers broadly centred with dark brown; the crest black, narrowly and obsoletely barred, the feathers with pure white tips; the interscapular region and scapulars are a rich dark brown with a decided purplish gloss. All the feathers with an excessively narrow marginal rufescent or fulvous fringe; on raising the feathers the rich brown with the purple gloss

(which has, I may mention, in some lights a greenish tinge) is found to be confined to a broad terminal band; the basal portions of the feathers are a somewhat pale drab-brown; the smallest scapulars are the richest and warmest in colouring, the longest the duller; the rump and upper tail-coverts much about the same tint as the longer scapulars. The tail a rather pale drab-brown, with a subterminal brownish black band, and three other moderately dark brown bands, the third almost entirely hidden by the upper tail-coverts; the quills have the outer webs brown, banded obscurely but broadly with darker brown, the inner web a rather dark drab-brown at the tips and white at the bases, with several broad black or blackish-brown transverse bands; the primaries, especially the earlier ones, are considerably darker on the outer webs, and have a greyish tinge on the interspaces of these webs; the tertiaries are much paler brown; the lesser coverts along the ulna and at the carpal joint are almost black; the greater coverts are about the same colour as the ground of the tail; the median coverts somewhat darker; all the quills are white-tipped, the secondaries most conspicuously so, and a few of the median coverts are also tipped in the same way. There is more or less of a purple gloss over the whole upper surface of the wings and tail.

The lores and an inconspicuous band under the eye and the base of the ear-coverts grey, the feathers darker-shafted; the rest of the ear-coverts and the lateral portions of the throat fulvous, the feathers more or less dark-shafted; chin and throat pure white, or with the faintest yellowish tinge, with a narrow but very conspicuous black central stripe; upper breast mingled white and a pale somewhat brownish rufous; lower breast, sides, flanks, axillaries and abdomen white, with broad regular transverse brownish-rufous bands, darkest on the sides and flanks; vent and lower tail-coverts white, with a dingy yellowish tinge, with here and there a trace of a transverse rufous band; the wing-lining is yellowish white, with rufous bars and mottlings; the lower surfaces of the quills are, at the tips, pale french grey, with black transverse bands; higher up they are white, with pale greyish-brown bands; the lower surface of the tail greyish white, the dark bands showing through more conspicuously on the outer webs and less so on the inner webs except of the four central tail-feathers; all the tail-feathers are tipped with drab-brown, paling at the extreme tip almost to white; this tipping is about a quarter of an inch wide on the central, and three quarters of an inch on the exterior tail-feathers. (*Hume.*)

Legs and feet white slightly tinged with blue; irides bright yellow; claws, upper and tip of lower mandible and cere blackish; the base of the lower mandible paler. (*Davison.*)

Length 18·5 inches, tail 9·6, wing 13·1, tarsus 1·6, bill from gape 1·35. (*Davison.*)

The Sumatran Kite-Falcon was obtained by both Mr. Davison and

Mr. Hough in the extreme south of Tenasserim. As it was for a long time doubtful whether the Tenasserim bird was the true *B. sumatrensis*, I have preferred giving Mr. Hume's description of the bird that Mr. Davison got. This species has been met with in Sumatra.

The birds of the genus *Baza* may be recognized not only by their long crest, but also by the double tooth on the edge of the upper mandible.

Genus MICROHIERAX, Sharpe.

583. MICROHIERAX CÆRULESCENS.

THE RED-LEGGED FALCONET.

Falco cærulescens, Linn. Syst. Nat. i. p. 125. *Hierax eutolmus*, Hodgs. in Gray's Zool. Misc. p. 81; Jerd. B. Ind. i. p. 42; Hume, Rough Notes, i. p. 111; Bl. B. Burm. p. 59. *Microhierax cærulescens*, Sharpe, Cat. Birds B. Mus. i. p. 366; Hume, S. F. iii. p. 22; Bingham, S. F. v. p. 80; Hume & Dav. S. F. vi. p. 3; Anders. Yunnan Exped. p. 571; Hume, S. F. viii. p. 81, ix. p. 142; Oates, S. F. x. p. 178; Gurney, Ibis, 1881, p. 272. *Microhierax eutolmus*, Hume, S. F. v. p. 127.

Description.—*Male.* Forehead, a broad supercilium, cheeks, sides of the neck and a broad collar on the hind neck white; crown, nape and all the upper plumage with the wing-coverts glossy black; primaries and secondaries black, with a series of white spots on the inner webs, these extending also to the outer webs of some of the later primaries; tertiaries entirely black; central tail-feathers black, the others black with white spots on the inner webs; a thin line round the eyes, the ear-coverts and a prolongation down the sides of the neck black; chin and throat ferruginous; breast and abdomen white tinged with ferruginous; thighs, vent and under tail-coverts very deep ferruginous; sides of the body black.

Females are like the males, but when fully adult the breast and abdomen become ferruginous like the throat, but not so deep as the colour of the thighs; this full tint of ferruginous does not appear to be ever assumed by the male on the breast and abdomen.

Young birds have the frontal band and supercilium and a line under the eye golden ferruginous; the chin and throat are white; the nuchal collar is inconspicuous and mottled with dusky; the changes to the adult stage are very gradual.

Bill slaty blue, nearly black at the tip; cere dark brown; iris hazel-brown; mouth fleshy blue; eyelids plumbeous; legs plumbeous brown; claws black.

Male: length 6·2 inches, tail 2·6, wing 3·8, tarsus ·85, bill from gape ·45.

Female: length 7 inches, tail 2·9, wing 4·2, tarsus ·9, bill from gape ·55.

The Red-legged Falconet probably occurs over the whole of British Burmah as far south as 16° north latitude, below which point Mr. Davison did not observe it. Personally I have only procured it in the northern portion of Pegu; but Mr. Blanford met with it near Bassein.

It extends through the Indo-Burmese countries into India, where it is found along the Himalayas as far as Sikhim; and it occurs in Siam and Cambodia.

This beautiful little Falconet is generally observed on the summit of a dead tree, whence it launches out in pursuit of passing insects; it also at times captures small birds. Capt. Bingham found the eggs in Tenasserim in April; they were four in number, white, and deposited in the hole of a tree.

584. MICROHIERAX FRINGILLARIUS.

THE BLACK-LEGGED FALCONET.

Falco fringillarius, *Drap. Dict. Class. d'Hist. Nat.* vi. p. 412, pl. v. **Hierax cærulescens** (L.), *apud Salvad. Ucc. Born.* p. 3. **Microhierax fringillarius**, *Sharpe, Cat. Birds B. Mus.* i. p. 367; *Hume, S. F.* v. p. 80; *Hume & Dav. S. F.* vi. p. 5; *Hume, S. F.* viii. p. 81; *Gurney, Ibis*, 1881, p. 274; *Kelham, Ibis*, 1881, p. 364. **Hierax fringillarius**, *Bl. B. Burm.* p. 60.

Description.—Adults have a narrow frontal band, a streak from a little above the posterior angle of the eye, backwards over the ear-coverts, chin, throat, sides of the neck behind the ear-coverts, cheeks immediately under the eye, breast, wing-lining, and numerous bars on the inner webs of all the wing- and lateral tail-feathers white.

The upper portion of the forehead, crown, occiput, nape and a portion of the sides of the neck behind the white streaks, ear-coverts and posterior portion of cheeks, the entire mantle, upper tail-coverts, central tail-feathers and outer webs of lateral tail-feathers glossy black with greenish reflections; secondaries, primaries and their greater coverts and winglet blackish hair-brown; sides of the body, flanks and hinder tibial plumes, and tips of longest lower tail-coverts also more or less glossy black; abdomen, vent, front of tibial plumes, shorter lower tail-coverts buffy white or pale ferruginous, or even in the oldest birds rather deep ferruginous.

When these parts become the latter colour, the chin and the greater part of the throat are generally suffused with pale ferruginous.

In the quite young bird the bill is yellow; the frontal band and the streak behind the eye are pale ferruginous; the patch below the eye and a margin round the black ear-patch rather paler ferruginous buff; margin of the wing tinged with the same colour; no black tip to the lower tail-

coverts; abdomen very pale fawn; feathers of the mantle very narrowly fringed with sordid white; upper tail-coverts more broadly fringed with buff. (*Hume.*)

Bill, legs and feet black; the irides wood-brown; the orbital skin plumbeous; the eyelids black. (*Davison.*)

Length 6 inches, tail 2·3, wing 3·8, tarsus ·7, bill from gape ·5. The female is larger, the wing being 4 inches and the tail 2·5.

I avail myself of Mr. Hume's capital description of this Falconet, more especially as it includes the plumage of the very young bird, which I have never seen.

The Black-legged Falconet occurs in Tenasserim as high as 14° north latitude.

It is met with in the Malay peninsula, Sumatra, Java and Borneo, and, according to Dr. Tiraud, in Cochin China.

This species is similar to the preceding in habits, and like it deposits its eggs in the hole of a tree.

Allied species described since Mr. Sharpe wrote his Catalogue are—*M. sinensis*, David, from China, and *M. latifrons*, Sharpe, from Borneo and the Nicobar Islands.

Genus POLIOHIERAX, *Kaup.*

585. POLIOHIERAX INSIGNIS.

FEILDEN'S FALCON.

Poliohierax insignis, *Wald. P. Z. S.* 1871, p. 627; *id. Ibis*, 1872, p. 471 *Sharpe, Cat. Birds B. Mus.* i. p. 370; *Sclater, S. F.* iii. p. 417; *Bl. B. Burm.* p. 59; *Wardlaw Ramsay, Ibis*, 1877, p. 454; *Hume & Dav. S. F.* vi. p. 2; *Tweedd. in Rowley's Orn. Misc.* iii. pl. ciii.; *Hume, S. F.* viii. p. 81; *Bingham, S. F.* ix. p. 142; *Oates, S. F.* x. p. 178; *Gurney, Ibis*, 1881, p. 275. **Poliohierax feildeni**, *Hume, Proc. As. Soc. Beng.* 1872, p. 70; *id. S. F.* iii. p. 19.

Description.—*Male.* Forehead, crown, nape and upper back ashy white, with black central streaks to all the feathers; cheeks and ear-coverts streaked with black and white in equal quantities; back, scapulars and wing-coverts black; rump and upper tail-coverts white; central tail-feathers black, with an obsolete spot or two of white near the base; the next pair black, barred with white on the inner web only; all the others black, barred with white on both webs; quills of the wing black, both webs having spots or bars of white, becoming smaller and less distinct on the secondaries and tertiaries; sides of neck and entire under plumage pure white.

The *female* has the forehead white streaked with black ; the crown, nape, upper back and sides of the neck bright chestnut ; the hinder part of the ear-coverts also tinged with chestnut ; the remainder of the plumage similar to the male.

Cere, gape and both mandibles as far as the nostrils orange-yellow ; anterior portion of bill bluish black ; eyelids and orbital skin orange ; iris brown ; legs orange ; claws black.

Male : length 10·5 inches, tail 5·5, wing 5·5, tarsus 1·5, bill from gape ·75. *Female* : length 11, tail 5·8, wing 6, tarsus 1·6, bill from gape ·75.

This beautiful Falcon was almost simultaneously discovered by Capt. Feilden at Thayetmyo and by Colonel Lloyd at Tonghoo. It is very abundant at the former place, extending on the west to the crest of the Arrakan hills ; but at Tonghoo, according to Capt. Wardlaw Ramsay, it is rare. I never observed it in any portion of Central or Southern Pegu. Mr. Davison noticed it in Tenasserim, from Myawadee down to Mooleyit mountain ; and Capt. Bingham procured a series in the Thoungyeen valley.

Mr. Gurney informs me that he has seen a specimen from Western Siam.

This Falcon is generally found in clearings in the dry forests so abundant in Northern Pegu. It feeds almost entirely upon insects. I have never found its nest ; but from what Capt. Feilden observed, it appears to breed in March and April, and its nest is placed in trees.

Genus FALCO, Linn.

586. FALCO PEREGRINUS.

THE PEREGRINE.

Falco communis, *Gm. Syst. Nat.* i. p. 270 ; *Sharpe, Cat. Birds B. Mus.* i. p. 376 ; *David et Oust. Ois. Chine*, p. 32. **Falco peregrinus**, *Gm. Syst. Nat.* i. p. 272 ; *Jerd. B. Ind.* i. p. 21 ; *Hume, Rough Notes*, i. p. 49 ; *Salvad. Ucc. Born.* p. 1 ; *Bl. B. Burm.* p. 59 ; *Dresser, Birds Eur.* vi. p. 31, pl. ; *Hume, S. F.* iii. p. 19 ; *Hume & Dav. S. F.* vi. p. 1 ; *Hume, S. F.* viii. p. 81 ; *Legge, Birds Ceylon*, p. 101 ; *Oates, S. F.* x. p. 177 ; *Gurney, Ibis*, 1882, p. 293 ; *Seebohm, B. Birds*, i. p. 23.

Description.—*Male and female (adult)*. Forehead greyish ; crown, nape, upper back, sides of the head and a broad moustachial streak very dark slate-colour, almost black on the upper back and moustaches ; remainder of upper plumage, wing-coverts, tertiaries and scapulars pure ashy blue,

each feather with the shaft black, the central portion more or less blackish and with numerous broken indistinct bar-like spots on both webs; quills dark brown, the inner webs barred with white; tail dark ashy, closely but indistinctly barred with blackish, the tip white; chin, throat and upper breast white, the latter with a few black shaft-streaks; lower breast, centre of the abdomen, vent, thighs and under tail-coverts white washed with rufous and with heart- or arrowhead-shaped spots; sides of the body barred with black; under wing-coverts and axillaries white, with broken bars of black.

The *young* are brown above, each feather edged with rufous; the bars on the inner webs of the quills rufous, not white; the tail ashy brown, tipped with rufous white, the central feathers with some rufous spots, the laterals with rufous bars on the inner webs; cheeks and broad moustachial stripe black, as in the adult; chin, throat and a patch behind the moustache white, with a few fine shaft-marks; an indistinct white collar round the hind neck; lower plumage pale rufous-white, densely streaked with ruddy brown; under wing-coverts rufous-brown, the feathers margined paler.

Iris dark brown; cere and gape bright yellow; eyelids pale yellow; base of bill plumbeous, tip dark horn-colour; legs bright yellow; claws black.

Length about 16 inches, tail 6·5, wing 12·5, tarsus 1·9, bill from gape 1·2. The female is much larger: length about 17 inches, tail 7·5, wing 14·5, tarsus 2·2, bill from gape 1·3.

The Peregrine is found over the whole of Burmah, but is nowhere common. I have, however, procured it pretty often in Pegu at Prome, Shwaygheen and Kyeikpadein; and Mr. Davison noticed it in Tenasserim at Thatone and Amherst.

The range of the Peregrine is very extensive, and it is found in nearly every portion of the world.

It appears to be a constant resident in Burmah; for I have procured it in February, May and November; but I have not, however, observed any indications of its breeding in this country. It makes its nest in trees, on the faces of cliffs and occasionally on the ground, laying two to four eggs, which are richly marked with various shades of bright rufous.

The specimens of the Peregrine that I have myself shot in Pegu were found in tracts of paddy-land near forests.

587. *FALCO PEREGRINATOR*.

THE INDIAN PEREGRINE.

Falco peregrinator, *Sundev. Phys. Tidsskr. Lund*, 1837, p. 177, pl. 4; *id. Ann. Nat. Hist.* ser. 1, xviii. p. 454; *Jerd. B. Ind.* i. p. 25; *Hume, Rough Notes*, i. p. 55; *id. Nests and Eggs*, p. 14; *Sharpe, Cat. Birds B. Mus.* i. p. 382; *Bl. & Wald. B. Burm.* p. 58; *Hume, S. F.* v. p. 500; *Hume & Dav. S. F.* vi. p. 1; *Hume, S. F.* viii. p. 81; *Gurney, S. F.* viii. p. 424; *Legge, Birds Ceylon*, p. 106; *Oates, S. F.* x. p. 178; *Gurney, Ibis*, 1882, p. 291.

Description.—*Male and female*. Similar in general character of plumage to *F. peregrinus*, but differs chiefly in having the crown, nape, upper back, wing-coverts and moustachial stripes deep black, and the lower surface deep rufous with very few marks, these being chiefly on the thighs, under tail-coverts and sides of the body.

The *young* are blackish above, the feathers more or less margined with rufous, and the lower surface rich tawny streaked with black.

The dimensions do not differ appreciably from those of *F. peregrinus*.

The Indian Peregrine was sent to Lord Tweeddale by Colonel Lloyd many years ago. The specimen in question is said to have been shot at Tonghoo, and there is no other instance known of its having occurred in Burmah.

It is met with throughout the greater part of the Indian peninsula from the Himalayas to Ceylon.

This bird is hardly more than a race of the Peregrine. Another race is *F. atriceps* from the north-west of India, the chief characteristic of which lies in the moustachial band, which is not separated from the black of the head as in *F. peregrinus* and *F. peregrinator*.

588. *FALCO SEVERUS*.

THE INDIAN HOBBY.

Falco severus, *Horsf. Trans. Linn. Soc.* xiii. p. 135; *Sharpe, Cat. Birds B. Mus.* i. p. 397; *Hume & Dav. S. F.* vi. p. 2; *Hume, S. F.* viii. p. 81; *Legge, Birds Ceylon*, p. 110. *Hypotriorchis severus*, *Jerd. B. Ind.* i. p. 34; *Hume, Rough Notes*, i. p. 87; *Salvad. Ucc. Born.* p. 2; *Bl. B. Burm.* p. 59.

Description.—*Male and female*. The whole upper plumage, cheeks and ear-coverts dark slaty black; traces of rufous on the nape; chin, throat and sides of the neck creamy white with a chestnut tinge; whole lower

plumage bright chestnut, with a few minute streaks of black on the breast and abdomen and a round spot or two on the thighs; under wing-coverts chestnut variegated with black; tail slaty black, the centre feathers obsoletely barred with dark grey and the others barred with rufous on the inner webs; quills dark brown, barred with rufous on the inner webs.

The streaks on the breast are lost when the bird is fully mature.

Cere, orbital skin and legs reddish yellow; bill plumbeous. (*Jerdon.*)

Length about 11 inches, tail 4·5, wing 8·5, tarsus 1·15. The female is considerably larger.

The Indian Hobby is stated by Mr. Blyth to occur in Tenasserim. Looking to its distribution it is extremely likely to be found also in Pegu and Arrakan.

It is met with in the Himalayas as far as Kumaon and in Bengal. Major Legge includes it in the birds of Ceylon, and it ranges down the Malay peninsula to Java, extending to Borneo, the Philippines, Celebes and New Guinea.

There is comparatively little known about this Hobby.

Genus TINNUNCULUS, *Vieill.*

589. TINNUNCULUS ALAUDARIUS.

THE KESTRIL.

Falco tinnunculus, *Linn. Syst. Nat.* i. p. 127; *Dresser, Birds Eur.* vi. p. 113, pl.; *David et Oust. Ois. Chine*, p. 36; *Seebohm, B. Birds*, i. p. 45. **Falco alaudarius**, *Gm. Syst. Nat.* i. p. 279. **Tinnunculus saturatus**, *Blyth, J. A. S. B.* xxviii. p. 277; *Hume, S. F.* v. p. 129. **Tinnunculus alaudarius**, *Jerd. B. Ind.* i. p. 38; *Hume, Rough Notes*, i. p. 96; *id. Nests and Eggs*, p. 21; *id. S. F.* iii. p. 22; *Bl. & Wald. B. Burm.* p. 59; *Wardlaw Ramsay, Ibis*, 1877, p. 453; *Gurney, Ibis*, 1881, p. 456. **Cerchneis tinnuncula**, *Sharpe, Cat. Birds B. Mus.* i. p. 425; *Hume & Dav. S. F.* vi. p. 3; *Legge, Birds Ceylon*, p. 114; *Hume, S. F.* viii. p. 81; *Scully, S. F.* viii. p. 223; *Oates, S. F.* x. p. 178. **Falco saturatus**, *Anders. Yunnan Exped.* p. 570. **Cerchneis saturata**, *Hume & Dav. S. F.* vi. p. 3.

Description.—*Adult male.* Forehead yellowish; head dark bluish ash, with black shaft-lines; wing-coverts, back and scapulars brick-red, with triangular black spots; upper tail-coverts and tail bluish ash, the former with obsolete black shaft-lines and the latter with a broad band of black across the end and tipped white; quills dark brown, notched with white on the inner webs, tipped and partially edged narrowly with white; sides of the head with a moustache blackish; chin and throat white; whole under

surface rufous-fawn, spotless about the vent and on the under tail-coverts, streaked with black on the breast and spotted on the abdomen and sides.

Adult female. Forehead yellowish; whole upper plumage and coverts deep rufous, striped closely on the head, barred elsewhere with black; the upper tail-coverts with a bluish tinge; tail dull rufous tinged with blue, barred narrowly with black, tipped broadly with pale rufous-white, and with a broad black subterminal band; chin and throat creamy white; ear-coverts mixed white and brown; a moustache and feathers under the eye dark brown; underparts pale rufous-white, the tail-coverts spotless, the breast striped, and the abdomen and sides spotted with dark brown; under wing-coverts spotted like the abdomen; quills dark brown, notched on the inner webs with spots, which are rufous interiorly and white towards the outside.

A *nearly adult male* is somewhat similar to the adult male; but the head and hind neck are strongly tinged with rufous, the ashy colour being less apparent; the underparts are much duller rufous.

Young males are like the female, but paler and more striped on the breast.

Legs orange-yellow; claws black; cere and eyelids yellow; iris brown; bill pale yellow at gape, changing to bluish black towards the tip; mouth pale bluish fleshy.

Length 14 inches, tail 7·2, wing 9·5, tarsus 1·6, bill from gape ·85. The female is larger.

The Kestrel is a common winter visitor to Pegu, being especially abundant in the vast plains of the south, where it arrives about the end of October, departing again in March. Mr. Davison states that it is rare in Tenasserim, and he observed it only in the northern portion of the Division. My men, however, procured one specimen at Malewoun, in the extreme south; and as they did not collect very vigorously, the acquisition of one specimen proves it, I think, to be not uncommon in those parts of Tenasserim. Capt. Wardlaw Ramsay found it very abundant in Karennee, and I should judge from his remarks that it may possibly breed in that country.

It has a wide range, being found, according to season, over the whole of Asia and Europe and a considerable portion of Africa.

The Kestrel is found in Burmah chiefly in the grass-plains of the south; but I have also observed it flying about the numerous large ruined pagodas which adorn most parts of the Province. It feeds almost entirely on mice; and its habit of hovering in the air at frequent intervals enables any one to identify it at a glance.

It makes its nest both on trees and on cliffs, and frequently deposits its eggs in the old nests of Magpies and Crows. The eggs, usually six

in number, are a rich reddish brown, very little of the ground-colour being visible.

The Kestrel procured by my men at Malewoon is rather richly coloured, and probably belongs to the race which Mr. Blyth named *T. saturatus*. It does not, however, in my opinion, differ from Indian birds except in this particular point of rich coloration.

590. TINNUNCULUS AMURENSIS.

THE EASTERN RED-FOOTED KESTRIL.

Falco vespertinus, var. *amurensis*, *Radde, Reis. Amurl., Vög.* p. 230, pl. i. fig. 2, a, b, c. *Cerchneis amurensis*, *Sharpe, Cat. Birds B. Mus.* i. p. 445; *id. S. F.* iii. p. 303; *Legge, S. F.* iii. p. 362; *id. Birds Ceylon*, p. 119; *Hume, S. F.* viii. p. 81; *Inglis, S. F.* ix. p. 243; *Butler, S. F.* ix. p. 371; *Oates, S. F.* x. p. 178. *Erythropus amurensis*, *Hume, S. F.* ii. p. 527, v. p. 6; *Gurney, Ibis*, 1882, p. 148. *Erythropus vespertinus*, *apud Hume, S. F.* iii. p. 22; *Wald. in Bl. B. Burm.* p. 59. *Falco amurensis*, *David et Oust. Ois. Chine*, p. 34.

Description.—*Adult male.* The whole upper plumage and sides of the head leaden black; the wings and tail more ashy, the outer webs of the quills and the outermost coverts washed with silvery grey; chin, throat, sides of the neck, breast, abdomen and sides of the body slaty; lower part of abdomen, vent, thighs and under tail-coverts chestnut; under wing-coverts and axillaries white.

The *adult female* has the whole upper plumage ashy brown, blacker on the head and back, more ashy on the upper tail- and wing-coverts, the whole with indistinct black cross bars; tail ashy, with numerous narrow black bars, the terminal one broader than the others; wings brown, the quills barred with white on the inner webs; forehead whitish; feathers round the eyes and cheeks blackish; chin, throat, ear-coverts and sides of the neck white; breast, abdomen and sides of the body white tinged with rufous, and with broad black streaks on the breast and abdomen, turning to bar-like marks on the sides of the body; vent, thighs and under tail-coverts pale buff with a tinge of rufous; under wing-coverts and axillaries white, barred with black.

The *young* are like the adult female in general appearance; but the feathers of the upper plumage are margined indistinctly with rufous, and there is an obscure rufous collar round the hind neck; the lower plumage is also considerably brighter.

Iris hazel; eyelids and bare skin orange; bill dark orange, black at the tip; tarsi and feet dark orange. (*Gurney.*)

Length about 12 inches, tail 5·3, wing 9, tarsus 1·1, bill from gape ·7. The female is of very much the same size, perhaps a little larger, not notably so.

The description of the adults is taken from a pair shot by Mr. Swinhoe in China, and figured in Mr. Gould's 'Birds of Asia.'

C. vespertina, the Western form, is similar in general appearance; the adult male differs in having the under wing-coverts and axillaries the same slate-colour as the abdomen, not white; the female differs in having the head rufous and the under plumage almost uniform rufous, with no marks except a few black shaft-lines; the young bird differs in having no bars on the sides of the body, and the tail has more bars, usually about eleven against eight in *C. amurensis*.

The Eastern Red-footed Kestrel appears to be a winter visitor to Burmah. Capt. Feilden, the only naturalist who has observed them in Burmah, met with them at Thayetmyo in January and February.

It is found in summer in North-eastern Asia; and it winters in Southern Africa, passing *en route* through India and the Indo-Burmese countries.

This Kestrel is generally gregarious, and it feeds on insects, which it catches both on the wing and on the ground.

Suborder PANDIONES.

Genus PANDION, *Savigny*.

591. PANDION HALIAËTUS.

THE OSPREY.

Falco haliætus, *Linn. Syst. Nat.* i. p. 129. **Pandion haliætus**, *Jerd. B. Ind.* i. p. 80; *Hume, Rough Notes*, i. p. 234; *Sharpe, Cat. Birds B. Mus.* i. p. 449; *Salvad. Ucc. Born.* p. 7; *Bl. B. Burm.* p. 63; *Dresser, B. Eur.* vi. p. 139, pl.; *David et Oust. Ois. Chine*, p. 14; *Legge, Birds Ceylon*, p. 122; *Hume & Dav. S. F.* vi. p. 16; *Anders. Yunnan Exped.* p. 575; *Hume, S. F.* viii. p. 82; *Oates, S. F.* x. p. 179; *Kelham, Ibis*, 1881, p. 367; *Gurney, Ibis*, 1882, p. 594; *Seebohm, B. Birds*, i. p. 55.

Description.—*Male and female.* Forehead, crown and nape white, each feather with a brown tip; ear-coverts, sides of the neck and the whole upper plumage rich hair-brown, each feather obsoletely margined paler; sides of the head and the whole lower plumage pure white; the breast streaked with brown tinged with rusty; primaries dark brown; secondaries paler, barred with white on the inner webs; tail brown, the outer

feathers prominently barred with white on the inner webs; the central pair obsoletely barred paler.

The *young* have the upper plumage dark brown, with buffy white margins to all the feathers, and the under plumage is white.

Iris bright yellow; cere, gape and eyelids dull greenish blue; bill black; legs pale greenish; claws black.

A female measured: length 22·5 inches, tail 9, wing 19, tarsus 2·2, bill from gape 1·6. The male is smaller.

The Osprey is tolerably abundant in the Pegu and the Sittang rivers, and probably also occurs in the Irrawaddy river. Mr. Blyth records it from Arrakan. Mr. Davison met with it only in the extreme south of Tenasserim; but it is probable that, as it occurs in Pegu, it is also likely to be found along the whole of the coast of Tenasserim at certain seasons.

It inhabits almost the whole of the tropical and temperate portions of the world.

The Osprey is probably only a winter visitor to Burmah; I have only observed it in the cold weather, chiefly in November and December. Two or three pairs are usually located in the Sittang river, each pair apparently keeping a portion of the river for its own exclusive use.

The Osprey is remarkable for the formation of its foot, the outer toe being reversible and pointing sideways. This causes it to have a very secure grasp of fish, upon which food it entirely subsists, catching the fish by darting down to the water with immense velocity. It hovers in the air a good deal, and at times settles on sandbanks to rest and to bathe. In Europe the Osprey usually builds its nest in some huge tree, constructing it of sticks, and laying three eggs, boldly blotched with reddish brown.

Genus POLIOAËTUS, *Kaup*.

592. POLIOAËTUS ICHTHYAËTUS.

THE BAR-TAILED FISHING EAGLE.

Falco ichthyaëtus, *Horsf. Trans. Linn. Soc.* xiii. p. 136. *Polioaëtus ichthyaëtus*, *Jerd. B. Ind.* i. p. 81; *Hume, Rough Notes*, ii. p. 239; *id. Nests and Eggs*, p. 43; *Sharpe, Cat. Birds B. Mus.* i. p. 452; *Salvad. Ucc. Born.* p. 6; *Hume, S. F.* iii. p. 29; *Legge, S. F.* iii. p. 363; *Bl. B. Burm.* p. 63; *Armstrong, S. F.* iv. p. 298; *Hume, S. F.* v. p. 129; *Legge, Birds Ceylon*, p. 72; *Gurney, Ibis*, 1878, p. 455; *Cripps, S. F.* vii. p. 248; *Hume, S. F.* viii. p. 82; *Bingham, S. F.* ix. p. 144; *Oates, S. F.* x. p. 179; *Kelham, Ibis*, 1881, p. 367.

Description.—*Male and female.* The whole head and neck all round grey; the entire upper plumage and breast brown; tail white, with a

broad brown band at the end ; primaries black ; the other quills brown ; abdomen, vent, sides of the body, thighs and under tail-coverts white.

The *young* have the upper plumage brown, the feathers of the head and hind neck streaked with paler brown, and the feathers of the other parts margined paler ; sides of the head and all the lower plumage wood-brown streaked with whitish ; quills dark brown, barred darker on the inner webs, and the bases white ; tail brown mottled with whitish, the mottlings forming irregular bars on the central pair of feathers.

Bill dark brown, the basal two thirds of the lower mandible bright plumbeous ; cere and iris brown ; legs and feet china-white ; claws black ; loreal region dusky greenish ; eyelids plumbeous brown.

Length 29 inches, tail 11, wing 19, tarsus 3·6, bill from gape 2·05. The female is considerably larger, the wing being 20 inches or more.

The Bar-tailed Fishing Eagle is fairly common over the whole Province in suitable localities. I procured it at Thayetmyo, and I found it very abundant in the swampy forests lying to the west of the Sittang river near Shwaygheen. Capt. Wardlaw Ramsay observed it at Tonghoo, and Dr. Armstrong in the Irrawaddy Delta. Mr. Davison states that it is sparingly distributed over Tenasserim ; but Capt. Bingham remarks that it is quite common in the Thoungyeen valley. It is probably abundant in Arrakan.

It is found in India, ranging westwards to Nipal and down to Ceylon ; and it occurs in the Malay peninsula and Cochin China, and in the islands of Sumatra, Java, Borneo and Celebes.

This fine Fishing Eagle is found in well-wooded parts of the country where large streams and swamps abound ; but it is most abundant in thick forests. It feeds chiefly on fish. Capt. Bingham found the nest in Tenasserim in March—a large structure made of sticks, and placed in a tree at a height of about one hundred feet from the ground. It contained one egg, of a chalky white colour.

I follow Mr. Sharpe in placing the Eagles of this genus with the Ospreys. It is not yet, however, clearly proved that the formation of the feet is the same with regard to the structure of the outer toe as in the Ospreys ; and I regret that I failed to examine the feet of the fresh birds when I had the opportunity of doing so. Mr. Gurney doubts whether the outer toe is reversible.

593. POLIOAËTUS HUMILIS.

THE LESSER FISHING EAGLE.

Falco humilis, Müll. et Schleg. *Verh. Ned. overz. Bez., Aves*, p. 47, pl. 6. **Polio-aëtus humilis**, Wald. *Trans. Zool. Soc.* viii. p. 35; *Sharpe, Cat. Birds B. Mus.* i. p. 454; *Salvad. Ucc. Born.* p. 6; *Bl. B. Burm.* p. 64; *Hume, S. F.* v. p. 130, viii. p. 82; *Gurney, Ibis*, 1878, p. 455; *Hume, S. F.* ix. p. 244; *Oates, S. F.* x. p. 177. **Haliaëtus humilis**, *Hume & Dav. S. F.* vi. p. 17.

Description.—*Adult female.* Above ashy brown, the back and wings darker and more chocolate-brown, the feathers of the crown and hinder neck slightly fulvescent towards their tips; lores and an indistinct eyebrow whitish; cheeks and entire throat and breast, as well as under wing-coverts, entirely ashy brown; the throat and fore part of the cheeks slightly varied with whitish streaks; lower abdomen, thighs, vent and under tail-coverts white; primaries black, whitish at base of inner web; secondaries brown like the back; tail pale brown at base, gradually becoming darker brown towards the tip, which is not very broadly white; a few whitish feathers on the bend of the wing; bill and cere dusky lead-colour; feet pale bluish white; iris light yellow. Total length 23 inches, culmen 2·05, wing 16·2, tail 8·8, tarsus 2·85, middle toe 1·95. (*Sharpe.*)

I have never procured the Lesser Fishing Eagle. Mr. Hume states that he received a specimen from Cape Negrais, and consequently it is entitled to a place in this work. The adult differs from the adult of the last species in having the tail pale brown with a white tip, and in being considerably smaller. A third species, *P. plumbeus*, *Hodgs.*, occupies an intermediate position between the two in regard to size, and the entire upper surface of the tail is a uniform ashy brown. It is found along the base of the Himalayas from Assam to Afghanistan.

The Lesser Fishing Eagle is found in the Malay peninsula, Sumatra and Celebes, and probably in Borneo. Mr. Hume also records it from Cachar.

Its habits are probably similar to those of *P. ichthyaëtus*.

Order VIII. STEGANOPODES.

Family PHAËTHONTIDÆ.

Genus PHAËTON, *Linn.*

594. PHAËTON RUBRICAUDA.

THE RED-TAILED TROPIC-BIRD.

Phaëton rubricauda, *Bodd. Tabl. Pl. Enl.* p. 57; *Jerd. B. Ind.* ii. p. 849; *Salvad. Ucc. Born.* p. 370; *Hume, S. F.* ii. p. 322, viii. p. 116. *Phaëton phœnicurus*, *Gm. Syst. Nat.* i. p. 583; *Gould, B. Austr.* vii. pl. 73. *Phaëton ætherius*, *Bloxh. Voy. Blonde*, App. p. 251.

Description.—A black mark in front of and behind the eye black; the whole plumage silky white; the shafts of the primaries and tail-feathers black; the webs of the lengthened central tail-feathers red; the centres of the long flank-feathers slate-colour; most of the tertiaries with a long broad slaty-brown streak down the centre.

Bill, in the dry specimen, yellow; tarsus and about half an inch of the basal portion of the toes and webs yellow; remainder of the foot black.

Length 33 inches, tail 19, wing 13.2, tarsus 1.2, bill from gape 3.2.

The description is taken from specimens in the British Museum collected in Australia. There are only three specimens, but they are all in exactly the same plumage. Mr. Hume's description of a bird shot in the Bay of Bengal agrees well with these birds.

Dr. Jerdon states that this bird is frequently seen in the Bay of Bengal, and Mr. Hume secured a specimen in these waters.

The Red-tailed Tropic-bird occurs in the tropical portions of the Indian and Pacific Oceans.

The Tropic-birds are of very graceful form, and more or less white in colour. They live in the air, flying about like Terns, and catching fish by plunging down upon them. They breed on islands, laying a single egg in a hole in a cliff, or even in a hole in the ground. The egg is reddish grey, marked with reddish brown.

595. PHAËTON FLAVIROSTRIS.

THE WHITE TROPIC-BIRD.

Phaëton flavirostris, Brandt, *Bull. Acad. Sc. St. Pétersb.* ii. p. 349; Hume, *S. F.* ii. p. 323, v. p. 498, viii. p. 116; Penrose, *Ibis*, 1879, p. 277; Legge, *Birds Ceylon*, p. 1172. *Phaëton candidus* (Briss.), *apud Jerd. B. Ind.* ii. p. 850.

Description.—General colour of the plumage white; a large mark in front of the eye, continued as a broad band down the sides of the head, black; the first four primaries with the outer web, the shaft and a narrow portion of the inner web black to within an inch of the tip of the feathers; the next few primaries more or less black on the basal portion of the shaft; a broad band along the median wing-coverts, the greater portion of the tertiaries and the tips of the scapulars black; shafts of the lengthened central tail-feathers black, those of the others black on the basal two thirds of their length only; some of the upper tail-coverts with black marks; the longer flank-feathers streaked with slate-colour; with the above exceptions the whole plumage is white.

Bill, in the dry specimen, pale yellow, with a pale plumbeous line along the central portion of both mandibles; tarsus and basal portion of foot yellow; remainder of foot black.

Length 30 inches, tail 18, wing 10·6, tarsus ·9, bill from gape 2·5.

The above description is taken from four specimens in the British Museum; they are all in the same plumage and are of the same size.

The White Tropic-bird was obtained by the late Col. Tytler at Ross Island, one of the Andaman group, and it must consequently occur on or near the Burmese coast*.

It is found in the tropical seas of the whole world, and one of its breeding-places is the island of Ascension.

A specimen of this bird was captured at a considerable distance from the sea in Cachar.

* All sea-birds of wide range which have been recorded as occurring in the Bay of Bengal must necessarily find a place in this work.

596. PHAËTON INDICUS.

THE SHORT-TAILED TROPIC-BIRD.

Phaëton ætherius (Linn.), *apud* Hume, *S. F.* i. p. 286, ii. p. 323. *Phaëton indicus*, Hume, *S. F.* iv. p. 481; Butler, *S. F.* v. p. 302; Hume & Dav. *S. F.* vi. p. 493; Hume, *S. F.* viii. p. 116; Legge, *Birds Ceylon*, p. 1173.

Description.—A broad conspicuous black crescent in front of the eye and a narrow black line from the gape to nostrils and nostrils to culmen, dividing the feathers from bill; the whole forehead and front part of the crown, ear-coverts and entire lower parts, including wing-lining and axillaries, pure white, the lower parts of the body glistening like white satin; a black line from the posterior angle of the eye, running round the back of the nape, where it forms a more or less conspicuous half-collar. The hinder portion of the crown and nape inside the half-collar white, each feather with a triangular black bar near the tips, in a great measure concealed by the overlapping of the tips of the feathers; the carpal joint of the wing, the four or five posterior primaries, the whole of the secondaries, the primary-coverts except those of the first five quills, the secondary, greater and median coverts pure white; the winglet, the greater coverts of the first five primaries, the outer webs of the first five primaries, together with a narrow stripe along the shaft on the inner web, black; the extreme tips and the inner webs of these feathers white; the tertials and their greater coverts black, narrowly margined on the exterior webs and tipped with white; the lesser secondary coverts similar; the entire back, scapulars, rump and upper tail-coverts white, regularly and closely barred with black, the bars being slightly cuspidate on the upper back, and the longest scapulars being almost devoid of barring, though this is not seen till the feathers are lifted. The shafts of the first five primaries are entirely black, those of the subsequent ones black on their basal portion. The tail-feathers white, the basal portions black-shafted, and the lateral tail-feathers mostly with an arrowhead bar or spot near the tip. The female is precisely similar to the male. (*Hume.*)

Irides deep brown; legs and hallux and its web, and basal joint of other toes white, tinged bluish and creamy yellow; rest of feet and claws black; bill dull orange-red; margins of both mandibles, nostrils and tips dusky. (*Hume.*)

Length about 21 inches, tail up to 10·3, wing up to 11·8, tarsus 1·1, bill from gape 3·4.

I have not been able to examine a specimen of this species.

The Short-tailed Tropic-bird was observed by Mr. Davison off the coast at the extreme southern point of Tenasserim, and also off Cape Negrais.

This species has been observed in various parts of the Indian Ocean north of the Equator, and it probably has a very extensive range.

Family FREGATIDÆ.

Genus FREGATA, *Briss.*

597. FREGATA AQUILA.

THE LARGE FRIGATE-BIRD.

Pelecanus aquilus, *Linn. Syst. Nat.* i. p. 216. *Attagen aquilus*, *Jerd. B. Ind.* ii. p. 853. *Fregata aquila*, *Salvad. Ucc. Born.* p. 364; *Hume, S. F.* viii. p. 116; *Legge, Birds Ceylon*, p. 1204. *Tachypetes aquila*, *Sharpe, Rep. Trans. Venus Exped.* p. 151; *Penrose, Ibis*, 1879, p. 276.

Description.—*Adult.* The whole plumage black, the feathers of the head, back and scapulars lanceolate and glossed with purple and lilac.

Length about 38 inches, tail 19, wing 26, tarsus .8, bill from gape 5.

A younger bird has the whole head and neck, the upper part of the breast and the lower abdomen white, the breast tinged with rufous; quills and tail black; remainder of the plumage smoky blackish brown, the feathers of the back and lesser wing-coverts margined with pale brown.

A third bird has the whole head neck, and the entire lower plumage white, except the vent and under tail-coverts, which, together with the remaining plumage, is smoky brown with pale margins to the feathers of the back and lesser wing-coverts.

A fourth bird, which I consider to be the youngest of the series, has the whole plumage smoky brown, the quills and tail black; the breast and abdomen white; the lesser wing-coverts broadly edged with pale brown, and the feathers of the back more narrowly edged with the same.

The above descriptions are taken from a series of four birds in the British Museum, ranged according to what I consider their progressive stages from the adult to the youngest.

The old bird described has an enormous pouch, probably distended by the taxidermist to an unnatural size. Its capacity is about a pint, its length about eight inches, and it stands out from the neck about three inches. The second bird has the throat broadly naked and its junction with the feathered sides abruptly defined. The other two have the sides of the throat covered with tiny feathers.

According to Major Legge the gular pouch in the male is scarlet, the iris red, bill pale bluish, nail flesh-colour, feet fleshy reddish.

According to Dr. Jerdon this bird has occurred on the Malabar coast, and it is also met with in the Bay of Bengal.

It is found in all the tropical seas of the world.

The Frigate-birds have great strength and powers of flight; they confine

themselves to the air, seldom or never swimming, and they hurl themselves into the sea to capture fish or pursue other birds to compel them to abandon their prey, which they immediately seize and eat. They breed on islands, laying one or two white chalky eggs.

In general appearance they resemble Eagles, the bill being very strong and hooked. The tail is of great length and deeply forked.

598. FREGATA MINOR.

THE LESSER FRIGATE-BIRD.

Pelecanus minor, *Gm. Syst. Nat.* i. p. 572. *Atagen ariel* (*Gould*), *G. R. Gray*, *Gen. Birds*, iii. p. 669; *Gould*, *B. Austr.* vii. pl. 72. *Attagen minor*, *David et Oust. Ois. Chine*, p. 534. *Fregata minor*, *Salvad. Ucc. Born.* p. 364; *Hume*, *S. F.* vii. p. 447, viii. p. 116, ix. p. 119; *Legge*, *Birds Ceylon*, p. 1203.

Description.—*Adult.* The whole plumage black; the feathers of the head, back and scapulars lanceolate and glossed with purple and lilac; a patch of white on the flanks.

Length about 30 inches, tail 14, wing 21·5, tarsus about ·6, bill from gape 4·2.

Another bird has the whole head and neck all round black; the breast, upper abdomen and the whole of the sides of the body white tinged with rufous; the white of the breast produced backwards to form a narrow, ill-defined collar round the neck; lower abdomen, vent and under tail-coverts black; the quills, tail, median and greater coverts, back, scapulars and rump deep black, the head and back slightly iridescent; the lesser wing-coverts pale brown margined with whitish. Wing 21 inches, tail 12.

What I consider to be a still younger bird has the whole head and neck rufescent; the breast pale brown; the abdomen and sides of the body glossy dark brown; lower abdomen white; thighs and under tail-coverts dark brown; quills and tail deep black; lesser wing-coverts brown broadly edged paler; remainder of the upper plumage blackish, some of the old feathers of the back being still present and brown in colour. Wing 21·5 inches, tail 13.

The above is the description of three specimens in the British Museum. The smaller size appears to be sufficient to separate this species from the preceding; it has in addition a patch of white on the flanks; the feet are rather more webbed and the tail less forked.

The three specimens before me clearly show that the pouch increases in size according to age. By increasing in size I mean that it becomes more denuded of feathers, and therefore more conspicuous. The youngest bird, with the rufous head, has merely a narrow naked streak down the throat;

the second, with a black head and white abdomen, has this space much broader; and the third, a bird entirely black with iridescent colours, has the naked skin nearly four inches long and one and a half inch wide. According to Mr. Gould, the orbits and gular pouch are deep red; the bill bluish horn-colour; irides black; feet dark reddish brown.

The Lesser Frigate-bird appears to be a frequent visitor to the shores of Ceylon. It has been observed on the coast of the Malay peninsula, and must at times visit Burmah.

It occurs in the Indian and Pacific Oceans, from China down to Australia and New Zealand; westwards to the meridian of Ceylon, and eastwards to New Caledonia.

This bird breeds on Raine's Islet in the Torres Straits, making a nest of sticks either on the ground or on low plants, and it lays either one or two chalky white eggs.

Family SULIDÆ.

Genus DYSPORUS, *Illig.*

599. DYSPORUS SULA.

THE BROWN BOOBY.

Pelecanus sula, *Linn. Syst. Nat.* i. p. 218. *Sula australis*, *Steph. Gen. Zool.* xiii. p. 104; *Hume, S. F.* v. p. 318, viii. p. 116. *Sula fusca* (*Briss.*), *apud Gould, B. Austr.* vii. pl. 78. *Sula fiber* (*Linn.*), *apud Jerd. B. Ind.* ii. p. 851; *Salvad. Ucc. Born.* p. 369; *Hume, S. F.* ii. p. 324, iv. p. 483. *Dysporus sula*, *David et Oust. Ois. Chine*, p. 530. *Sula leucogastra* (*Bodd.*), *apud Legge, Birds Ceylon*, p. 1177.

Description.—*Adult.* Breast, abdomen, sides of the body, vent and under tail-coverts pure white; sides of the under tail-coverts, the flanks and the under wing-coverts slightly marked with brown on the edges of the feathers; the whole remaining plumage umber-brown, the feathers of the back, scapulars and rump edged with whity brown; those of the fore neck with the white bases showing through in places; quills and tail dark umber-brown.

The *young bird* has the upper plumage paler brown, and the lower plumage instead of being white is also pale brown.

Irides white; bill creamy white with a bluish tinge in veins; the pouch, gape, lores and orbital spaces pale hoary greenish yellow; the legs and feet pale yellow, with a greenish tinge on tarsi; the claws white with a bluish tinge. (*Hume.*)

Length about 30 inches, tail 8, wing 16·5, tarsus 1·9, bill from gape 4·5.

The above description is taken from a specimen collected by Mr. Packman in Tenasserim and now in the British Museum. It is not quite adult, for when old the upper plumage appears to be a uniform umber-brown without paler edges.

The Brown Booby occurs along the Tenasserim coast, where it was obtained by Mr. Packman and observed by Mr. Davison. Dr. Jerdon states that it occurs in the Bay of Bengal, and Mr. Hume met with it near some of the islands of the Cocos group.

It is found in all parts of the world in the tropical seas.

The Boobies are birds of the ocean, seldom going on shore except to roost at night; they plunge into the sea to capture their prey; they follow ships and frequently settle on the rigging, and, from their habit of stretching out their necks and owing to their silly appearance, are termed boobies by sailors. They breed on small islands, a single white chalky egg being laid on the bare soil.

Mr. Hume has conclusively shown that the name *S. fiber*, Linn., does not apply to the present species, and he has also suggested that *S. leucogastra*, Bodd., is probably a small South-American species.

600. DYSPORUS PISCATOR.

THE RED-LEGGED BOOBY.

Pelecanus piscator, Linn. *Syst. Nat.* i. p. 217. *Sula piscator*, Gould, *B. Austr.* vii. pl. 79; *Jerd. B. Ind.* ii. p. 852; *Hume, S. F.* viii. p. 116. *Sula piscatrix*, *Salvad. Ucc. Born.* p. 368; *Hume, S. F.* iv. p. 483, v. p. 312.

Description.—Quills and greater wing-coverts blackish, variegated with silvery grey; tail and the whole plumage white, slightly tinged with yellowish on the head, neck and back.

The young bird is entirely brown; the tail and other parts, except the quills and greater coverts, gradually turn to white; but birds with pure white tails appear to be rare in collections.

This species may always be recognized by its red feet. Even in very old skins the feet remain red.

Length about 26 inches, tail 8, wing 13·8, tarsus 1·4, bill from gape 4·3. These are the dimensions of an adult bird in the British Museum.

Dr. Jerdon records this Booby from the Bay of Bengal, where it is extremely likely to occur.

It is found in the tropical seas of the whole world, wandering at times outside the tropics for some distance.

601. **DYSPORUS CYANOPS.**

THE MASKED BOOBY.

Sula cyanops, *Sunder. Phys. Sällsk. Tidsk.* 1837, p. 218, t. 5; *Salvad. Ucc. Born.* p. 367; *Butler, S. F.* v. p. 303; *Hume, S. F.* v. p. 307, viii. p. 116; *Legge, Birds Ceylon*, p. 1180. *Sula personata*, *Gould, P. Z. S.* 1846, p. 21; *id. B. Austr.* vii. pl. 77.

Description.—Plumage white; the primaries and their coverts, greater wing-coverts and secondaries, as also the tips of the tertials and scapulars, brownish black; inner webs of the secondaries basally white; tail very dark brown, somewhat paler than the primaries, the basal portion of the feathers white, extending along the edges of the central pair; under wing white. (*Legge*.)

Irides yellow; naked skin of the face and chin dull bluish black; legs greenish blue. (*Gould*.) Legs and feet lavender-blue; bill pale bluish horn; gular skin slate; irides pale green. (*Butler*.)

Length about 32 inches, tail 7·5, wing 17, tarsus 2·2, bill from gape nearly 5.

The Masked Booby has occurred at Ceylon, and consequently it must sometimes be found in the Bay of Bengal. Indeed, Mr. Hume mentions casually (*S. F.* v. p. 310) that this species occurs at the Cocos Islands.

This species has the same wide range as the other Boobies.

Family PHALACROCORACIDÆ.

Genus PHALACROCORAX, *Briss.*602. **PHALACROCORAX CARBO.**

THE LARGE CORMORANT.

Pelecanus carbo, *Linn. Syst. Nat.* i. p. 216. *Pelecanus sinensis*, *Shaw & Nodd. Nat. Misc.* pl. 529. *Graculus carbo*, *Jerd. B. Ind.* ii. p. 861; *Hume, Nests and Eggs*, p. 659; *Salvad. Ucc. Born.* p. 364; *Bl. B. Burm.* p. 164; *Oates, S. F.* v. p. 169. *Phalacrocorax carbo*, *David et Oust. Ois. Chine*, p. 532; *Hume & Dav. S. F.* vi. p. 496; *Anders. Yunnan Exped.* p. 696; *Dresser, Birds Eur.* vi. p. 151, pl.; *Legge, Birds Ceylon*, p. 1182; *Doig, S. F.* vii. p. 468; *Hume, S. F.* viii. p. 116; *Oates, S. F.* x. p. 248.

Description.—*Male and female in breeding-plumage.* General colour of the plumage black; a nuchal crest of narrow, pointed feathers about an inch and a half long; a white band from eye to eye encircling the bare

throat; a broad black streak from the eye extending over the ear-coverts and descending to form a collar next to the white throat-band; remainder of the head, the throat for about two inches below the black band, the sides of the neck and the back of the neck to about six inches from the forehead white mixed with greenish black, all the feathers short and sharp-pointed; remainder of the neck, the whole lower plumage, the back, rump, upper tail-coverts and tail deep black, glossed with blue and purple; the shoulders, scapulars and upper wing-coverts bronze, each feather broadly margined with black; coverts to primaries and the whole of the quills black, glossed with bronze; under wing-coverts glossy black; a large white patch on the outside of the thighs.

In the *nonbreeding-plumage* the white thigh-patch is absent, and the whole lower plumage becomes much mixed with white in varying degrees, some birds having much more white than others.

Iris green; eyelids and the lores dusky yellow; skin of throat and jaws bright yellow, or black profusely spotted with yellow; skin under the eye orange; legs and claws black; upper mandible and tip of the lower dark brown; remainder of the lower mandible white, varying to pale pink.

Length 32 inches, tail (of fourteen feathers) 7·2, wing 13·3, tarsus 2·3, bill from gape 3·8. The female is of about the same size.

The white thigh-patch is assumed from about the first of September to the middle of December, and is common to both the sexes.

The Large Cormorant is very abundant throughout the low plains of Southern Pegu. It occurs in all the other parts of Burmah, but is of comparatively rare occurrence.

It is met with in nearly every portion of Asia, Europe, Africa and Australia, and it ranges to the eastern coast of North America.

The Large Cormorant is found in large flocks, frequenting tanks, lakes and rivers, in the latter preferentially above tidal influence. It is a constant resident in Burmah, their numbers being, however, considerably reduced in the dry weather, some of the birds apparently migrating elsewhere as the streams and ponds dry up. I found immense numbers of this Cormorant breeding at Myitkyo, at the head of the Canal, in October. The nests, made of twigs, weeds and stalks of grass, were placed on trees growing in the water. The eggs, four or five in number, are very long and narrow, dull white in colour and very chalky in texture.

These Cormorants associate in large flocks and feed entirely on fish. They spend most of their time in the water, swimming with the whole body submerged and catching each fish by pursuing it under water. When resting on land they have the habit of partially expanding their wings, presenting a remarkable appearance. They fly with great speed, but they are reluctant to take to wing.

603. PHALACROCORAX FUSCICOLLIS.

THE WHITE-TUFTED CORMORANT.

Phalacrocorax fuscicollis, Steph. Gen. Zool. xiii. pt. i. p. 91; Legge, *Birds Ceylon*, p. 1182; Hume & Dav. S. F. vi. p. 496; Butler, S. F. vii. p. 178; Hume, S. F. viii. p. 116; Oates, S. F. x. p. 248. *Phalacrocorax sinensis*, Steph. Gen. Zool. xiii. pt. i. p. 96. *Graculus sinensis* (Shaw)*, Jerd. B. Ind. ii. p. 862; Hume, *Nests and Eggs*, p. 660; Butler, S. F. iv. p. 33. *Graculus fuscicollis*, Bl. B. Burm. p. 164; Oates, S. F. v. p. 170.

Description.—*Male in breeding-plumage.* The whole plumage deep black glossed with blue and green; the feathers of the back, scapulars and wing-coverts brown with broad black margins; a tuft of decomposed soft white feathers, about an inch in length, on either side the head just behind the ear-coverts; a few very minute specks of white on the forehead, over the eye and on the lower neck.

The *female in breeding-plumage* differs from the male in wanting the white tufts on the side of the head.

In *nonbreeding-plumage* there is a band of white immediately next the naked gular skin, the white tufts and white specks on the head are altogether wanting, and the cheeks and fore neck are brownish.

Iris green; naked skin of the head yellow; feet and claws black; upper mandible blackish, lower whitish.

Length 25 inches, tail (of twelve feathers) 6·6, wing 10·8, tarsus 1·7, bill from gape 3·4. The female is of the same size.

I am of opinion that, as above stated, the female in the breeding-plumage differs from the male in wanting the white tufts on the sides of the head; but I am not quite certain of the fact.

The White-tufted Cormorant is very abundant, and resident in the streams which intersect the plain between the Pegu and the Sittang rivers; but in other portions of Pegu I did not meet with more than a few birds. Mr. Davison noticed it in the creeks between the Sittang and Salween rivers; and it will probably be found in small numbers in most parts of the Province.

It extends through the Indo-Burmese countries, and is found over the greater portion of the Indian peninsula.

The habits of this species are precisely the same as those of *P. carbo*. I found it breeding in the swamps at Myitkyo in July; the nests were built on reeds near the surface of the water.

* The *Pelecanus sinensis*, Shaw, is undoubtedly the large Cormorant of China. *Pelecanus sinensis*, Lath. (Ind. Orn. Suppl. p. lxx) is said to have twelve rectrices, and the description would apply as well to the present species as to any other; but it is said to be very common in China, and to be the species used by the people for fishing. No one has, however, met with this Cormorant in China in recent years.

604. PHALACROCORAX PYGMÆUS.

THE LITTLE CORMORANT.

Pelecanus pygmæus, *Pall. Reis. Russ. Reichs*, ii. p. 712. *Carbo javanicus*, *Horsf. Trans. Linn. Soc.* xiii. p. 197. *Carbo melanognathus*, *Brandt, Bull. Ac. Sc. St. Pétersb.* iii. p. 57. *Graculus javanicus*, *Jerd. B. Ind.* ii. p. 863. *Graculus melanognathos*, *Hume, Nests and Eggs*, p. 660; *id. S. F.* iii. p. 194. *Microcarbo pygmæus*, *Salvad. Ucc. Born.* p. 366. *Graculus pygmæus*, *Bl. B. Burm.* p. 164; *Oates, S. F.* v. p. 170. *Phalacrocorax pygmæus*, *Dresser, Birds Eur.* vi. p. 173, pl.; *Anders. Yunnan Exped.* p. 697; *Legge, Birds Ceylon*, p. 1191; *Hume & Dav. S. F.* vi. p. 496; *Hume, S. F.* viii. p. 116; *Oates, S. F.* x. p. 248.

Description.—*Breeding-plumage.* The whole plumage deep black; the feathers of the wing-coverts, scapulars, tertiaries and secondaries paler at the centres, the edges broadly black; the shafts of the feathers of the upper back glistening; a short occipital crest; several white hair-like feathers on the sides of the head and neck.

At other times the chin and upper throat are whitish; and the feathers are everywhere more or less margined with pale rufescent white, and the whole of the neck and head is more or less brownish.

Iris greenish brown, varying to greenish white; bill fleshy; upper mandible dark brown; facial and gular skin dark. (*Legge.*)

Length 20 inches, tail (of twelve feathers) 6·5, wing 8, tarsus 1·4, bill from gape 2·3. The female is of the same size.

The Little Cormorant is generally distributed over the whole of Burmah, and in some parts, such as the low plains of Southern Pegu, is exceedingly abundant.

It is met with over the greater portion of Southern Asia, South-east Europe and Northern Africa. It has not yet been recorded from any part of China nor from Cochin China; but it extends down the Malay peninsula to Sumatra, Java and Borneo.

The Little Cormorant is found as often singly as in flocks, and it appears to be confined to fresh water. It breeds in July and August; and I found great numbers of its nests at Myitkyo in reed-beds.

Family PLOTIDÆ.

Genus PLOTUS, *Linn.*

605. PLOTUS MELANOGASTER.

THE DARTER.

Anhinga melanogaster, *Penn. in Forst. Ind. Zool.* p. 22, pl. 12. **Plotus melanogaster**, *Jerd. B. Ind.* ii. p. 865; *Hume, Nests and Eggs*, p. 661; *Salvad. Ucc. Born.* p. 367; *Hume, S. F.* iii. p. 194; *Bl. B. Burm.* p. 165; *Oates, S. F.* v. p. 170; *Legge, Birds Ceylon*, p. 1194; *Hume & Dav. S. F.* vi. p. 496; *Anders. Yunnan Exped.* p. 698; *Hume, S. F.* viii. p. 116; *Oates, S. F.* x. p. 248.

Description.—*Male.* Chin, throat, the upper part of the fore neck, and a narrow line about five inches in length from the head down the sides of the neck white; the head and neck marked with minute streaks of black, brown, whitish and rufescent; the lower part of the front of the neck and the whole lower plumage glossy black; primaries, secondaries and tail black tinged with green, the latter with the central feathers rayed across; upper back glossy brownish black, the feathers very narrowly margined with rufescent, the lateral parts streaked with white; wing-coverts, scapulars and tertiaries glossy black, each feather with a long narrow mesial white streak; lower back, rump and upper tail-coverts greenish black.

The *female* has the plumage of the same general colour as the male, but the neck is more fulvous; the black on the chest is bordered by a yellowish band which extends up the neck, and the streaks on the upper plumage are yellowish.

Iris yellow; legs black; bill with the upper mandible brown or blackish, the lower yellowish.

Length about 36 inches, tail 10, wing 14, tarsus 1·5, bill from gape 3·8. The female is of the same size.

The Darter or, as it is sometimes called, the Snake-bird is very common throughout the Province, being found in all ponds and swamps, and sometimes in rivers where the current is not strong.

It is found over the whole of India and Ceylon, the Indo-Burmese countries, the Malay peninsula, Sumatra, Java, Borneo and Celebes. Further south it is replaced by *P. novæ-hollandiæ*, a closely allied species.

The Darter lives chiefly in the water, subsisting on fish, which it catches by diving. It swims with only the head and a portion of the neck exposed to view. It breeds in large societies and I found hundreds of them nesting in the Myitkyo swamp in August on dead trees standing in the water. The eggs, three or four in number, are dull chalky white.

Family PELECANIDÆ.

Genus PELECANUS, *Linn.*

606. PELECANUS MANILLENSIS.

THE SPOTTED-BILLED PELICAN.

Pelecanus manillensis, *Gm. Syst. Nat.* i. p. 571. *Pelecanus philippensis*, *Gm. Syst. Nat.* i. p. 571; *Jerd. B. Ind.* ii. p. 858; *Sclater*, *P. Z. S.* 1868, p. 268; *Hume, Nests and Eggs*, p. 658; *id. S. F.* iii. p. 194; *Oates, S. F.* v. p. 169; *David et Oust. Ois. Chine*, p. 531; *Hume & Dav. S. F.* vi. p. 495; *Oates, S. F.* vii. p. 41; *Hume, S. F.* viii. p. 116; *Oates, S. F.* x. p. 247. *Pelecanus rufescens*, *apud Elliot, P. Z. S.* 1869, p. 583 (part.). *Pelecanus roseus*, *apud Salvad. Ucc. Born.* p. 363. *Pelecanus philippinensis*, *Bl. B. Burm.* p. 164; *Anders. Yunnan Exped.* p. 695; *Legge, Birds Ceylon*, p. 1198.

Description.—Nestling. Covered with white down; iris dark brown; bill pale plumbeous; legs china-white; pouch pale bluish white.

The down on the wings soon turns to pale rufous, and the scapulars, when they appear, are brown edged with ferruginous; the wing-coverts on making their appearance are furnished with a dense fringe of rufous down, which, however, soon falls off, leaving the feathers with rufous margins.

The scapulars are developed very rapidly and their ferruginous margins are diminished in extent as the bird grows; the down on the head and neck gives place to brownish feathers, and the crest and loose feathers of the mane on the hind neck soon make their appearance.

The *young bird* when fully fledged retains its first feathers for at least one year, the only change being that the brown colours become darker and the rufous edgings abraded and consequently less marked. The impressed spots on the bill are not indicated till the eighth month, and even at the end of twelve months these spots are quite indistinct compared with those of the adult bird. Towards the end of the first year a livid spot appears in front of the eyes and soon becomes clearly defined; the nail and the terminal third of the edges of the bill are yellow; the legs and toes flesh-colour.

After the first moult, at about twelve months of age, the whole head and neck are covered with short soft downy feathers, the bases of which are black, the tips white; and the crest and mane are developed to the same extent as in the adult; the shoulders and scapulars wood-brown; lesser and median coverts to the secondaries wood-brown, the feathers all edged paler; greater coverts darker brown, edged with light brown; coverts to tertiaries greyish brown, edged with pale fulvous; the whole of the coverts narrow and sharp-pointed; winglet, primaries and their coverts

dark brown; secondaries and tertiaries brown, tinged with ashy on the outer webs; the whole back white; rump, upper tail-coverts and flanks white, with delicate brown shaft-streaks; tail dark brown, with the base white; lower plumage whity brown, each feather being white with the tip brownish; the feathers close, dense and soft.

In June of the third year, or when the bird is about thirty months old, the moult into adult breeding-plumage is commenced and the change is entirely effected by October, except that in this first breeding-season the wing-coverts never become entirely white as in the old bird, the feathers of these parts being a mixture of long sharp-pointed white feathers and brown, comparatively blunt, brown ones. Between June and October the pouch, which has hitherto been spotless, becomes blotched with livid as in the adult, the blotches extending to the face; the legs turn to dark brown; the iris becomes paler brown; and the spots on the bill become firm and well defined.

Adult in breeding-plumage (September to February).—Forehead, top of head, crest and cheeks pure white, the bases of the feathers black, but barely visible; the hind neck, from the crest to the upper back, covered by rather long, soft, greyish-brown feathers forming a mane; remainder of head and neck white, the feathers with black bases, showing out slightly; all the feathers curly, dense and very soft; crest sharply pointed, erect or falling forwards; upper back and shoulders white, the feathers sharply pointed; lower back, upper part of rump, and flanks rich vinaceous, the shafts hair-brown; lower part of rump pure white, the feathers falling over the upper tail-coverts, which are also pure white but with very conspicuous black shafts; tail ashy, with dark-brown shafts; upper scapulars narrow and finely pointed, white with black shafts; lower scapulars broad and rounded, ashy with black shafts; tertiaries more or less white on inner webs and more or less ashy on the outer webs; secondaries brown, tinged with ashy on the outer webs; primaries very dark uniform brown; winglet and primary-coverts dark brown: coverts over secondaries—lesser coverts very finely pointed and narrow, white tinged with yellow; median coverts also sharply pointed, white with black shafts; greater coverts rounded, brown on terminal half of outer and terminal third of inner webs, bases white; the median coverts as long as, or longer than, greater coverts and partially concealing them: coverts over tertiaries—lesser white; median vinaceous; greater pale ashy: under coverts of tertiaries totally vinaceous; those of the primaries and secondaries white, splashed in places with vinaceous; lower neck in front, breast and sides of body white tinged with yellow, all the feathers rather rigid and very sharp-pointed; abdomen from breast to vent white, the feathers soft and rounded; feathers below vent sharp-pointed, vinaceous; under tail-coverts ample, soft, vinaceous with dark shafts.

Bill pinkish yellow, the lateral portions of the upper mandible with large bluish-black spots; the nail and terminal halves of both mandibles orange-yellow; the central portions of the sides of the lower mandible smeared with bluish black; pouch dull purple, blotched and spotted with bluish black; eyelids and skin round the eye orange-yellow; skin in front of the eye livid; legs and feet very dark brown; claws yellowish horn-colour; iris stone-white, varying to pale yellow clouded with brown.

Length 57 inches, tail (of twenty-two feathers) 8 to 9·5, wing 22 to 24, tarsus 3·3 to 3·8, bill from gape 13·5 to 14·5. The female is smaller, but not conspicuously so.

In nonbreeding-plumage (March to August).—The adults assume the same plumage as that worn by the young after the first moult.

The Spotted-billed Pelican is found in all the lowlands of Burmah, but is especially abundant in the swampy plains between the Pegu and the Sittang rivers, and again in the plains between the Sittang and the Salween rivers.

It is met with over a considerable portion of the Indian peninsula as far west as Scinde, and to the south as far as Ceylon; it extends to China, whence I have examined Mr. Swinhoe's specimens; it is found in Cochin China and Siam, and it ranges down the Malay peninsula to Java, Borneo and the Philippine Islands.

There seems no room to doubt that Gmelin's two names *P. manillensis* and *P. philippensis* apply to this species, nor that his *P. roseus* applies to the next. This latter name was founded by Gmelin on Latham's "Rose-coloured Pelican" (Syn. iii. pt. 2, p. 579), which name was again derived by Latham from Sonnerat's "Le pélican rose de l'isle de Luçon" (Voy. Nouv. Guin. p. 91, t. 54). The Spotted-billed Pelican is never at any stage of its existence rose-coloured, whereas the White Pelican during the breeding-season is of a beautiful rose-colour throughout. The confusion which has arisen regarding the names of these two species is due I think to the paucity of specimens in European museums, and the consequent ignorance regarding the plumages of the two species. The British Museum now possesses upwards of fifty specimens of Pelicans procured by myself in Burmah; and an inspection of these skins will, I venture to think, lead European ornithologists to agree with me in assigning the name *P. manillensis* to the Spotted-billed Pelican and *P. roseus* to the next species, usually termed *P. javanicus*.

P. rufescens, the fourth name assigned by Gmelin to a Pelican, is clearly applicable to the Abyssinian bird, a species similar in general appearance to *P. manillensis*, but differing in several constant characters. In the first place, the crest is not curly, but composed of straight, pointed feathers three or four inches long; in the second, the feathers of the mane on the hind neck are also straight, not curly and soft; and in the third, the bill

at all ages is spotless. Judging also from specimens which I examined in the Paris, Strasburg, and Leyden museums, the adults seem to have the vinous or rufous back and rump throughout the year, not at the breeding-season only as *P. manillensis* has.

The Spotted-billed Pelican is a constant resident in Burmah, but is more abundant from October to February than at other times. It breeds in vast numbers in the tract of country lying to the west of the Sittang river and just north of Paghein. The breeding-season commences at the end of October. The nest is a large structure made of sticks and placed in a very high tree near the top, and from three to twenty pairs of Pelicans make their nests on the same tree. The eggs, three in number, are white and very chalky in texture.

Pelicans generally congregate in immense flocks, swim well, and live entirely on fish. They cannot dive; and their mode of catching fish is to range themselves in a double or even a treble line and beat the water with their wings. Progressing forward at the same time, they drive the fish towards the banks where the water is shallow and then scoop them up into their pouches. They fly exceedingly well, and after the morning feed is over they mount high into the air and circle round at a vast height for some hours together. They frequently perch on trees; but they are incapable of walking far.

The two Pelicans that occur in Burmah may be discriminated at a glance by the formation of the feathered portion of the forehead: in *P. manillensis* the frontal feathers terminate in a concave line; in *P. roseus* the frontal feathers come to a sharp point.

607. PELECANUS ROSEUS.

THE EASTERN WHITE PELICAN.

Pelecanus roseus, Gm. *Syst. Nat.* i. p. 570. *Pelecanus javanicus*, Horsf. *Trans. Linn. Soc.* xiii. p. 197; *Jerd. B. Ind.* ii. p. 857; *Sclater, P. Z. S.* 1868, p. 268; *Elliot, P. Z. S.* 1869, p. 581; *Salvad. Ucc. Born.* p. 363; *Bl. B. Burm.* p. 164; *Hume & Dav. S. F.* vi. p. 494; *Hume, S. F.* viii. p. 116. *Pelecanus mitratus*, Licht. *Abhandl. Akad. Wiss. Berl.* 1838, p. 436, t. iii. f. 2; *Jerd. B. Ind.* ii. p. 856; *David et Oust. Ois. Chine*, p. 531; *Hume, S. F.* viii. p. 116. *Pelecanus onocrotalus*, apud *Jerd. B. Ind.* ii. p. 854; *Hume, S. F.* viii. p. 116. *Pelecanus minor*, apud *Oates, S. F.* x. p. 247.

Description.—Bird of the year. Crest not more than half an inch long, composed of soft loose feathers; a line of feathers down the hind neck of the same character; head and neck tinged chestnut; the whole lower plumage deep chestnut; upper plumage dingy white, the centres of the

feathers darker; tail dark brown; winglet blackish; scapulars and tertiaries dark brown; secondaries ashy brown; primaries black with white shafts; lesser and median wing-coverts hair-brown; greater coverts ashy brown; under wing-coverts brown, edged with whitish brown; no indication of a breast-patch.

The change to mature plumage consists in the feathers turning white and in the assumption of a crest and a breast-patch. The full plumage is probably not attained till the third or fourth year.

Adult in full breeding-plumage. The whole plumage a beautiful rosy pink; primaries black with white shafts, primary-coverts entirely black; secondaries varying from blackish in those next the primaries to ashy in those next the body; breast-patch ochreous yellow. The *female* has a crest, about four inches long, of narrow straight pointed feathers directed backwards and lying rather flat. The *male*, as far as my own experience goes, *never has a crest*.

It may seem extraordinary that the male bird should not have a crest, but I am of opinion that such is the case. Although constantly shooting crested females in Burmah, I never met with a crested male, notwithstanding that many males I shot were in the full rosy adult plumage. Dr. Jerdon seems to have described the male of this species under the name of *P. onocrotalus*, for he describes the plumage as white, the wing as being 28 inches in length, and the occiput with a very small crest of the same kind as the feathers on the neck. His *P. mitratus* is the female, with a long pendent crest of narrow feathers 4 or 5 inches long, and wing 27 inches.

The change from the plumage of the young to that of the adult is very gradual. The scapulars and tertiaries are not pure white till the bird is aged; as a rule the feathers of both these parts are edged with black for many years; but all traces of these edgings eventually disappear. Much importance has been attached to these same black edges, and they have been thought to be a characteristic of *P. javanicus*; but the European bird possesses them in an equal degree with the Asiatic, as may be observed in the numerous individuals of the European species to be found in the zoological gardens of England and the continent.

The female does not have a crest till she is aged; and females in perfectly pure adult white plumage may be shot in Burmah without a vestige of a crest except a few curly feathers. In this state they are *P. javanicus*, the type of which, now in the British Museum, is nothing more or less than a crestless adult female of the present species.

The breast-patch is assumed as soon as the general colour of the plumage becomes white; it is always present, but becomes more brilliant at the breeding-season, and both sexes have it.

The winglet remains black till long after all traces of the black edges to the scapulars and tertiaries have disappeared. It changes to white

gradually, feather by feather, and eventually becomes entirely white ; but birds with entirely white winglets are scarce.

The rosy colour of the adult is peculiar to the breeding-season, which apparently lasts from September to about February.

The deep chestnut lower plumage of the young bird is lost very gradually, and even old birds show a tendency to retain a tinge of it on the abdomen. It has been suggested to me that this chestnut colour may be caused by some colouring-matter in the water that the birds frequent ; but I have examined too many birds for this to be possible, and, moreover, the depth of the chestnut colour is always correlated with the brown colour of the upper plumage—the browner the upper plumage, the deeper chestnut the lower.

In the young the bill is blue, faintly margined with black ; the nail pale chestnut ; pouch ochre-yellow ; face violet ; iris orange ; legs yellowish white, the front of the tarsus and toes blackish ; claws black.

In the adult the rib of the upper mandible is blue, slightly mottled with white, the sides of the mandible red, with a central band of blue on the basal half ; nail coral-red ; basal half of lower mandible blue, terminal half yellow, the margins of the basal half red ; pouch gamboge-yellow ; face yellow ; iris lake-red ; webs orange-yellow ; tarsus and toes pink ; claws orange-yellow.

Males measure : length 62 inches, tail 8, wing 28, tarsus 5·5, bill at front 14 to 15·75. The female : length 54 inches, tail 7, wing 25, tarsus 4·5, bill at front 10·75 to 12, crest 4 to 5. Tail of 22 feathers in both sexes.

The Eastern White Pelican is a seasonal visitor to the low parts of Burmah, arriving in August and probably leaving in January or February.

It has an extensive range, and is found in India, but how far west it is impossible to say. In the Leyden Museum there is a specimen from Nipal with the lower plumage chestnut, and in the Paris Museum there is another specimen from Oudh killed by Major Sharpe. Mr. Hume met with a White Pelican in Scinde ; but I am unable to say whether it was the present species or *P. onocrotalus*, and Mr. Hume himself throws no light on the question. It extends into China and Cochin China, the Malay peninsula, Java, Sumatra, Borneo and the Philippine Islands.

This Pelican from February to August visits South Africa. I examined Lichtenstein's type of *P. mitratus*, a beautiful specimen, now preserved in the Berlin Museum, and found it to be a crested female identical with Burmese specimens ; it came from Kaffirland. There are other specimens in the Paris Museum from the Cape of Good Hope.

P. onocrotalus, the European or western White Pelican, may possibly extend into India ; but I was not able to detect a single specimen of this species from India in any of the European museums I visited. I noted *P. onocrotalus* from the Danube, Greece, Syria, Egypt and Senegal ; and in the

Berlin Museum I observed a specimen from Mozambique, the most southern locality in Africa where I can state with certainty that this species is found.

It remains to point out the characters by which *P. roseus* and *P. onocrotalus* may be recognized. In the first place, *P. roseus* is a smaller bird, notably so with regard to the bill, which in the male never exceeds a length of 16 inches and is usually under 15, measured from the forehead to tip; the female has the bill varying in length from 10·75 to 12 inches and never exceeding, even in very large birds, 12·5 inches. *P. onocrotalus* has the bill in the male bird exceeding 17 inches and reaching up to 18, and in the female it is usually 14 inches and never, so far as I am aware, less than 13 inches. In the second place, *P. roseus* has invariably twenty-two rectrices, *P. onocrotalus* twenty-four. This is the safest and surest test when the tails are perfect, and even when imperfect it is seldom difficult to arrive at the correct number. Professor Schlegel has suggested to me that, like the Geese, the Pelicans may have a varying number of rectrices; but I am in a position to state that, with regard to the two species I met with in Burmah, the rectrices are invariably twenty-two in number, neither more nor less. All the specimens in museums, which from their size, locality, and other characters should be *P. onocrotalus*, proved on examination to have twenty-four rectrices. Many mounted specimens were obviously derived from zoological gardens, and in many cases the tails were hopelessly imperfect. The same may be said of living birds, of which I have examined nearly twenty; the tail is usually imperfect, and the base of the tail so covered with down that the number of rectrices cannot be arrived at with any certainty. Yet, notwithstanding these drawbacks, I counted a sufficient number of tails to make certain that *P. onocrotalus* has twenty-four rectrices. A third point is the coloration of the immature birds. In *P. roseus* the young are chestnut below, and a tinge of this colour is retained by even old birds; in *P. onocrotalus* the lower plumage in immature birds is brown of various shades, not rufous or chestnut. A fourth point is, that in *P. roseus* in the breeding-season the forehead is not swollen to any appreciable extent; in *P. onocrotalus* it is swollen to such an extent as to form a remarkable feature in the bird's appearance. A fifth point is one on which I do not wish to lay too much stress, for I may be wrong; it is, that in *P. roseus* the adult male is not crested.

P. longirostris, Hume (S. F. v. p. 491), belongs to the *P. roseus* type of Pelican, where the frontal feathers terminate in a point. I have not been able to examine Mr. Hume's type, and it is useless to hazard an opinion about it; but I would remark that the length of the bill (18·1 inches) is by no means too long for a male *P. onocrotalus**.

* I take this opportunity of returning my thanks to the authorities of the museums and zoological gardens at Paris, Frankfort, Strasbourg, Berlin, Hamburg, Amsterdam, Leyden, Rotterdam, the Hague, and Antwerp, for their courtesy in allowing me to examine, in the fullest manner possible, all specimens of Pelicans, both living and stuffed, under their charge.

Order IX. HERODIONES.

Family ARDEIDÆ.

Genus ARDEA, *Linn.*

608. ARDEA CINEREA.

THE GREY HERON.

Ardea cinerea, *Linn. Syst. Nat.* i. p. 236; *Jerd. B. Ind.* ii. p. 741; *Hume, Nests and Eggs*, p. 610; *Salvad. Ucc. Born.* p. 344; *Bl. B. Burm.* p. 159; *Hume, S. F.* iii. p. 190; *Dresser, Birds Eur.* vi. p. 207, pl.; *David et Oust. Ois. Chine*, p. 437; *Hume & Dav. S. F.* vi. p. 472; *Hume, S. F.* viii. p. 114; *Legge, Birds Ceylon*, p. 1127; *Oates, S. F.* x. p. 243.

Description.—*Male.* Forehead, a streak over the lores as far as the eye and the anterior portion of the crown white; posterior part of crown, nape and an ample occipital crest of pointed feathers bluish black; two longer and firmer feathers spring from the crown and slightly exceed the occipital crest in length; chin, throat and sides of the head white; fore neck white, the inner webs of the feathers streaked with black; feathers at base of neck long and narrow, a delicate rufous-grey; sides of the body, axillaries and under wing-coverts bluish grey, the latter tipped with greyish white; centre of the breast and the whole abdomen pure white; a large patch on either side the breast continued as a broad band to the thighs bluish black; vent mingled white and bluish; under tail-coverts white; back and sides of the neck pale rufous-grey; back, rump, upper tail-coverts and tail bluish grey; primaries, secondaries, primary-coverts and winglet dark bluish black; edge of the wing white; tertiaries, lesser and median coverts bluish grey edged paler; greater coverts bluish grey on the outer and dark brownish grey on the inner webs; the larger scapulars bluish grey, darker at the tips; the feathers of the shoulders and the upper scapulars long and disintegrated, bluish grey with white central streaks.

The *female* differs in being of duller colours and in having the plumes less lengthened.

Bill yellow, darker at the base of the upper mandible; eyelids and orbital skin greyish brown; a patch of yellow skin between the eye and the bill; iris yellow; tarsus and toes dark brown; claws black; tibia fleshy brown; underside of toes yellow.

Length 39 inches, tail 7, wing 18, tarsus 6, bill from gape 6.1.

The Common Heron is spread over the whole of Burmah in the dry weather, and it probably breeds in this country. I do not remember, however, to have met with it in the rains.

It is found over a considerable portion of Asia, extending north to Japan and south through the islands to Australia. Dr. Tiraud states that it is common and breeds in Cochin China. It inhabits the whole of Europe and Africa.

This Heron is generally found singly on the banks of rivers and is of a shy disposition. It breeds in India from March to July, making a large stick nest on a tree, and laying three pale bluish-green eggs.

609. ARDEA SUMATRANA.

THE GREAT SLATY HERON.

Ardea sumatrana, *Raffl. Trans. Linn. Soc.* xiii. p. 325; *Jerd. B. Ind.* ii. p. 740 (part.); *Hume, Nests and Eggs*, p. 610 (part.); *Salvad. Ucc. Born.* p. 344 (part.); *Bl. B. Burm.* p. 159; *Hume & Dav. S. F.* vi. p. 469; *Hume, S. F.* viii. p. 114; *Kelham, Ibis*, 1882, p. 192. *Ardea typhon*, *Temm. Pl. Col.* 475. *Ardea tectirostris*, *Gould, P. Z. S.* 1843, p. 22; *id. Birds Austr.* vi. pl. 54.

Description.—The entire upper surface is deep slaty, the scapulars and feathers of the interscapular region linear, lanceolate, elongated, with the terminal portions greyish white; the feathers of the base of the back of the neck similar but much smaller, and nothing like so elongated as those of the sides and front of the base of the neck; a sort of dull purplish-brown shade over the crown, occiput, back and sides of the neck; an occipital crest of numerous linear greyish-white feathers, the longest of which are sometimes fully nine inches in length; the whole space in front of the eye and a broad band above and behind the eye, and again below the eye to the commissure, bare; ear-coverts and sides of the occiput light ashy brown, sometimes faintly rufescent; chin, upper part of throat, feathers on either side of the base of the lower mandible white; the rest of the throat and fore neck mingled ashy brown and slaty, with here and there a somewhat ruddy brown tinge; feathers of the base and sides and front of the neck elongated, some of them fully seven inches in length, linear lanceolate, and the visible terminal portions pearl-grey; rest of entire lower surface ash-grey; the wing-lining, axillaries and under surface of the wing a very pure blue slate-colour. (*Hume.*)

Length 50 inches, tail 6, wing 18·5, tarsus 7, bill at front 6·5. (*Hume.*)

In a young male the front of the tarsus was dark horny brown; the bare portion of tibia and back of tarsus and soles pale dirty green; irides bright yellow; facial skin pale dirty green; upper mandible horny black; lower mandible whitish horny, yellowish towards tip. (*Davison.*)

The Great Slaty Heron was observed by Mr. Davison in the extreme

south of Tenasserim from Mergui to Bankasoon, and Mr. Blyth gives it from Arrakan.

It extends down the Malay peninsula, and is found throughout the archipelago as far as Australia. Dr. Tiraud records it from Cochin China, where he states that it is not rare.

This large Heron appears to be confined to the sea-coast and the mouths of the larger estuaries and rivers.

An allied species (*A. insignis*) is found at the foot of the Himalayas, and I have received it from Bhamo in Independent Burmah. It has the lower plumage white, and it is found inland, apparently never on the sea-coast.

610. ARDEA PURPUREA.

THE PURPLE HERON.

Ardea purpurea, Linn. *Syst. Nat.* i. p. 236; *Jerd. B. Ind.* ii. p. 743; *Hume, Nests and Eggs*, p. 611; *Salvad. Ucc. Born.* p. 345; *Bl. B. Burm.* p. 159; *Hume, S. F.* iii. p. 190; *Dresser, Birds Eur.* vi. p. 217, pl.; *Oates, S. F.* v. p. 167; *David et Oust. Ois. Chine*, p. 438; *Hume & Dav. S. F.* vi. p. 472; *Legge, Birds Ceylon*, p. 1132; *Anders. Yunnan Exped.* p. 686; *Hume, S. F.* viii. p. 114; *Oates, S. F.* x. p. 243.

Description.—*Male and female.* Forehead, crown, an occipital crest, a streak from the gape to the nape through the ear-coverts, a broad streak from the nape down the back of the neck, two narrow streaks one on each side of the neck from the gape and joining on to the streaked fore neck slaty black; chin and throat white; with these exceptions the head and neck with the lengthened plumes on the upper breast are chestnut, the lower half of the fore neck and the breast-plumes streaked with black and more or less whitish at the edges; remainder of lower plumage a mixture of slaty chestnut and black; lower half of hind neck, back, rump, upper tail-coverts, tail, quills and scapulars dark slaty; the upper feathers of the scapulars long and pointed and chiefly chestnut; upper wing-coverts ashy tinged with chestnut.

The *young bird* has no crest and no lengthened plumes on the scapulars and breast; the whole neck is spotted or streaked, and the feathers of the upper plumage are broadly edged with rufous.

The *nestling* has the crown of the head, quills and tail lavender-brown; throat and chin pure white; sides of the head and the upper neck rufous; lower neck rufous-grey, the feathers on the sides being centred with brown; lower plumage rufescent, each feather more or less dark-centred; thighs plain rufous; upper plumage brown, each feather edged with rufescent, more especially on the scapulars and tertiaries; upper and lower wing-coverts bluish brown, each feather broadly edged with rufous.

Iris yellow ; upper mandible dark brown, the margins as far back as the nostrils dusky yellow, produced back to the eye ; margins from nostrils to gape dark brown ; anterior half of lower mandible clear yellow, posterior half dull yellow ; gape and facial skin greenish yellow ; edges of the eyelids yellow ; legs and toes yellowish, the front of tarsus and toes glossy brown ; claws dark horn-colour.

Length 38 inches, tail 5, wing 14·5, tarsus 5, bill from gape 6. The female is rather smaller.

The Purple Heron is very abundant and a constant resident in all the lowlands of Burmah.

It is found over a great part of Asia, Europe and Africa, extending to Java and Borneo on the south and to Japan on the north.

This Heron is found singly or in couples except at the breeding-season, when immense numbers congregate and nest together. It affects concealment, and is generally seen in swamps where there is a considerable amount of cover. I found great numbers of their nests in the Myitkyo swamp in July and August. The nest is made of sticks, and placed on matted reeds near the surface of the water. The eggs, four or five in number, are pale green.

Genus HERODIAS, *Boie*.

611. HERODIAS ALBA.

THE LARGE WHITE HERON.

Ardea alba, *Linn. Syst. Nat.* i. p. 239 ; *Dresser, Birds Eur.* vi. p. 231, pl. *Ardea torra*, *Buch., Frankl. P. Z. S.* 1831, p. 123. *Herodias alba*, *Jerd. B. Ind.* ii. p. 744 ; *Hume, S. F.* iii. p. 190 ; *Bl. B. Burm.* p. 159 ; *Oates, S. F.* v. p. 167 ; *David et Oust. Ois. Chine*, p. 439 ; *Scully, S. F.* viii. p. 360 ; *Legge, Birds Ceylon*, p. 1138. *Herodias torra*, *Salvad. Ucc. Born.* p. 347 ; *Hume & Dav. S. F.* vi. pp. 472, 480 ; *Hume, S. F.* viii. p. 114 ; *Scully, S. F.* viii. p. 360 ; *Oates, S. F.* x. p. 243. *Ardea egretta*, *apud Hume, Nests and Eggs*, p. 613.

Description.—*Male and female in breeding-plumage.* The whole plumage pure white ; a long train of soft decomposed feathers springing from the back and extending about four inches beyond the tail ; no crest ; no breast-plumes.

In *nonbreeding-plumage* the dorsal train is wanting.

In winter the bill is yellow ; orbital skin greenish yellow ; iris pale yellow ; tibia dull greenish ; tarsus and toes black ; soles yellowish. In summer the bill is black and the facial skin rather bright green ; the tibia bluish black.

Length about 36 inches, tail 6, wing 13·5 to 14·7, tarsus 5·2 to 6·1, bill

at front 4 to 4·6, from gape about 5·5. The female is of much the same size.

The Large White Heron varies very much in size, those from Europe and northern latitudes having the wing about 17 inches in length. A few of these large birds occasionally visit India. Burmese birds have the wing invariably less than 15 inches in length. There seem, however, to be connecting-links between the largest and the smallest birds, and therefore I think it convenient to keep all the Herons of this type under one name, as is done by Mr. Dresser and Major Legge.

This Heron is found over the greater part of Asia, extending down to Australia; also in Europe and Africa.

A constant resident in Burmah, the Large White Heron is found singly or in flocks in almost every portion of the plains of the Province in paddy-fields, swamps and on the banks of streams. It breeds in the rains in considerable numbers near villages and monasteries on large trees, constructing a nest of sticks, and laying three or four pale bluish-green eggs.

612. HERODIAS INTERMEDIA.

THE LESSER WHITE HERON.

Ardea intermedia, van Hasselt, *Wagler, Isis*, 1829, p. 659; *Hume, Nests and Eggs*, p. 615. *Ardea egrettoides*, *Temm. Man. d'Orn.* iv. p. 374. *Herodias egrettoides*, *Jerd. B. Ind.* ii. p. 745. *Herodias intermedia*, *Salvad. Ucc. Born.* p. 348; *Bl. B. Burm.* p. 159; *Hume, S. F.* iii. p. 190; *David et Oust. Ois. Chine*, p. 440; *Hume & Dav. S. F.* vi. pp. 476, 480; *Legge, Birds Ceylon*, p. 1141; *Anders. Yunnan Exped.* p. 687; *Hume, S. F.* viii. p. 114; *Oates, S. F.* x. p. 243.

Description.—*Male and female in breeding-plumage.* The whole plumage pure white; a train of soft decomposed feathers springing from the back and exceeding the tail by seven or eight inches; a long soft tuft of feathers springing from the breast; no crest.

In nonbreeding-plumage the dorsal and pectoral trains are wanting.

In summer the bill is black; the facial skin green; the iris yellow; the legs and toes black. In winter the bill becomes yellow with the tip blackish.

Length about 28 inches, tail 5·5, wing 11·5 to 12·5, tarsus 4·3, bill at front about 2·9. The female is of the same size.

The Lesser White Heron is of rather rare occurrence in Burmah; but it is probably restricted to no particular portion of the country. Mr. Blyth received it from Rangoon, Capt. Feilden observed it at Thayetmyo, and I procured it on the banks of the canal. It may turn out to be commoner

than I suppose it to be, for, until shot, it is very difficult to discriminate it from the other allied White Herons.

It occurs in India, Ceylon, the Indo-Burmese countries and the greater part of Eastern Asia from Japan down to Australia. It is also found over a considerable portion of Africa.

The habits of this Heron do not differ in any respect from those of its allies.

613. HERODIAS GARZETTA.

THE LITTLE BLACK-BILLED WHITE HERON.

Ardea garzetta, Linn. *Syst. Nat.* i. p. 237; *Hume, Nests and Eggs*, p. 616; *Dresser, Birds Eur.* vi. p. 239, pl. *Herodias garzetta*, *Jerd. B. Ind.* ii. p. 746; *Hume, S. F.* iii. p. 190; *Bl. B. Burm.* p. 159; *Hume & Dav. S. F.* vi. pp. 476, 480; *David et Oust. Ois. Chine*, p. 440; *Legge, Birds Ceylon*, p. 1144; *Anders. Yunnan Exped.* p. 688; *Hume, S. F.* viii. p. 114; *Oates, S. F.* x. p. 243; *Kelham, Ibis*, 1882, p. 193.

Description.—*Male and female in breeding-plumage.* The whole plumage white; a crest composed of two or three narrow feathers about five inches in length; a train of soft decomposed feathers springing from the back and barely extending beyond the tail, curled upwards at the tips; the feathers of the breast long and pointed.

In *nonbreeding-plumage* the crest, dorsal and pectoral trains are wanting.

Bill always black, the base of the lower mandible yellowish; iris yellow; facial skin greenish yellow; tarsus black; toes mixed yellow and black.

Length about 25 inches, tail 4, wing 9·6 to 11, tarsus about 4·2, bill from gape about 4. The female is of the same size.

The Little Black-billed White Heron is abundant in all parts of Burmah except on the hills.

It has a great range, being met with over the whole of Southern and Eastern Asia through the islands to Australia; it also occurs in Southern Europe and over a great part of Africa.

This Little Heron is found in small flocks in every spot where there is water, especially in paddy-fields and the edges of swamps. It breeds in trees near villages, making a nest of sticks, in June and July, and laying five bluish-green eggs.

614. HERODIAS EULOPHOTES.

THE LITTLE YELLOW-BILLED WHITE HERON.

Herodias eulophotes, *Swinh. Ibis*, 1860, p. 64; *Bl. Ibis*, 1865, p. 37; *Bl. B. Burm.* p. 159; *David et Oust. Ois. Chine*, p. 441; *Hume & Dav. S. F.* vi. pp. 478, 480; *Hume, S. F.* viii. p. 114.

Description.—*Male in May* (Swinhoe collection). The whole plumage white; a crest of numerous straight feathers four inches in length; a train of feathers springing from the back and not exceeding the tail; feathers of the breast about 3 inches long; bill entirely yellow; legs and toes black. Length of skin 20 inches, tail 3·1, wing 9·3, tarsus 2·9, bill from gape 3·8.

Another specimen unsexed and without date is in exactly the same plumage and has the bill entirely yellow; it measures—length of skin 22 inches, tail 3·7, wing 10·1, tarsus 3·6, bill 3·9.

A young bird (male, Ningpo, Sept. 22) has no crest and no train either on the breast or back; the basal two thirds of the lower mandible and the margins of the basal half of the upper are yellow, remainder of the bill black; toes yellowish above.

Mr. Swinhoe gives the length of the bird as 27 inches; but I do not think that any one of the three specimens, the measurements of which in the skin are given above, could ever have measured this length in the flesh.

In breeding-plumage this species may be distinguished from the preceding by the character of the crest and by the bill being yellow instead of black. At other times when the crest is absent the identification will be difficult; but I think that in *H. eulophotes* the bill will always be found to be more or less yellow over the greater portion of the lower mandible, whereas in *H. garzetta* merely the base is yellow, and the tarsus also appears to be always much shorter.

The Little Yellow-billed White Heron is stated by Mr. Blyth to have occurred at Mergui in Tenasserim; and Mr. Davison procured at Amherst, in the same Division, a specimen of a small white Heron which Mr. Hume identifies with the present species. I think it visits Southern Pegu in the winter, but I am not certain of the fact.

Mr. Hume mentions another bird shot at the Andamans which he is inclined to assign to this species, and, judging from the colour of the bill as described by him, correctly so.

This species inhabits Formosa and the south of China. Mr. Blyth many years ago identified *H. immaculata* from Australia with the Chinese bird; but, judging from Mr. Gould's plate, in which the bird is represented with a black bill, I am inclined to doubt the accuracy of this identification.

Genus DEMIEGRETTA, Bl.

615. DEMIEGRETTA SACRA.

THE BLUE REEF-HERON.

Ardea sacra, Gm. *Syst. Nat.* i. p. 640; *Hume, Nests and Eggs*, p. 618. *Ardea jugularis*, Forst., *Wagl. Syst. Av.*, *Ardea*, sp. 18. *Demiegretta concolor*, Bl. *J. A. S. B.* xv. p. 372. *Demiegretta sacra*, *Salvad. Ucc. Born.* p. 346; *Wald. Ibis*, 1873, p. 318; *Hume, S. F.* i. p. 254, ii. p. 304; *Hume & Dav. S. F.* vi. p. 481; *Hume, S. F.* viii. p. 114. *Herodias concolor*, Bl. *B. Burm.* p. 160.

Description.—The *adult in full breeding-plumage* is everywhere of a deep blackish slate-colour; the feathers of the head almost black; the feathers of the upper breast greatly elongated, as are those of the middle back, some of the latter disintegrated; the elongated feathers of a paler slaty grey, those of the breast not exceeding 3·5 inches in length, those of the back reaching quite to the end of the middle tail-feathers. In most specimens there is a somewhat brownish ashy tinge on the abdomen and vent-feathers. In some adults there are not more than one or two white feathers on the whole chin and throat; in others there is a well-marked pure white streak from the tip of the chin down the centre of the throat fully four inches in length, and between these two extremes every intermediate amount of white occurs. There is a broad full occipital crest about an inch long. (*Hume.*)

A certain proportion of these Herons are pure white throughout, with dorsal and pectoral plumes developed as in the ashy birds above described, except that the dorsal plumes are sometimes longer, exceeding the tail by one inch. It seems to be generally recognized now that the white birds and the ashy ones belong to the same species; in fact the nestling birds are sometimes white, sometimes ashy and occasionally pied ashy and white, but the old birds apparently never exhibit this latter pied plumage.

Length 21 to 24 inches, tail 3 to 4·25, wing 9·85 to 11·75, tarsus 2·7 to 3·1, bill at front 2·65 to 3·5. (*Hume.*)

In *nonbreeding-plumage* the pectoral tuft and the dorsal train are wanting.

An allied species *D. gularis* differs in having the whole chin, throat and sides of the head as high up as the gape and the ear-coverts white, and it is also larger than *D. sacra*.

The Blue Reef-Heron occurs along the whole coast of British Burmah.

It is found in the Andaman and Nicobar Islands, and it is spread along the shores of the whole of Eastern Asia, from Japan southwards to the islands of the Archipelago, Australia, and some of the islands of the Pacific Ocean.

This Heron is entirely a sea-coast bird, being found singly or in small parties on the shore or a short distance up some of the larger creeks. It breeds from April to June, making a nest of sticks in a low tree on some small island, and laying pale green eggs.

Genus BUBULCUS, *Puchér.*

616. BUBULCUS COROMANDUS.

THE CATTLE-EGRET.

Cancroma coromanda, *Bodd. Tabl. Pl. Enl.* p. 54. **Buphus coromandus**, *Jerd. B. Ind.* ii. p. 749; *Bl. B. Burm.* p. 160; *Hume & Dav. S. F.* vi. p. 481; *Anders. Yunnan Exped.* p. 688; *Bingham, S. F.* ix. p. 197; *Kelham, Ibis*, 1882, p. 193. **Ardea coromanda**, *Hume, Nests and Eggs*, p. 618. **Bubulcus coromandus**, *Salvad. Ucc. Born.* p. 350; *Hume, S. F.* iii. p. 190; *Armstrong, S. F.* iv. p. 349; *David et Oust. Ois. Chine*, p. 441; *Legge, Birds Ceylon*, p. 1147; *Hume, S. F.* viii. p. 114; *Scully, S. F.* viii. p. 361; *Oates, S. F.* x. p. 243.

Description.—*Summer plumage.* The whole plumage white except the head, neck, breast and dorsal plumes, which are a rich golden buff. The feathers of the head lengthened, forming a bushy crest; the dorsal plumes reaching to the end of the tail, and the pectoral plumes lengthened.

In *winter* the whole plumage is white and the dorsal plumes are cast off or much reduced in length.

Iris pale yellow; eyelids yellowish; bill, gape and facial skin orange-yellow; tibia and knee dusky yellow; tarsus and toes greenish black; soles green; in winter the bill is pale yellow.

Length 20·5 inches, tail 3·4, wing 10·2, tarsus 3·5, bill from gape 3. The female is of the same size.

The Cattle-Egret is abundant in all the plains of British Burmah, and is a constant resident.

It inhabits Southern China and Cochin China, the Indo-Burmese countries and the whole of India and Ceylon; it ranges down the Malay peninsula and is met with in Java, Borneo, Celebes and the Philippine Islands.

This Heron is found in small parties in fields accompanying grazing cattle, and does not much affect water or swampy localities. I have never found its nest; but in India it breeds in societies with other Herons, making a stick nest in trees from April to July and laying four or five very pale green eggs.

Genus ARDEOLA, *Boie*.

617. ARDEOLA GRAYI.

THE POND-HERON.

Ardea grayii, *Sykes*, *P. Z. S.* 1832, p. 158. *Ardeola leucoptera*, *apud Jerd. B. Ind.* ii. p. 751. *Ardeola grayi*, *Hume, Nests and Eggs*, p. 619; *id. S. F.* iii. p. 190; *Bl. B. Burm.* p. 160; *Armstrong, S. F.* iv. p. 350; *Oates, S. F.* v. p. 167; *Hume & Dav. S. F.* vi. p. 481; *Legge, Birds Ceylon*, p. 1150; *Hume, S. F.* viii. p. 114; *Scully, S. F.* viii. p. 361; *Bingham, S. F.* ix. p. 197; *Oates, S. F.* x. p. 243.

Description.—*Male and female in summer plumage.* Head and neck greyish yellow, the crown dusky; a long occipital crest of pointed feathers white; back and scapulars dark blackish maroon, the feathers very long and decomposed; remainder of the plumage white.

In *nonbreeding-plumage* both sexes have the chin and throat white; the whole head, neck and breast fulvous, each feather broadly edged at the sides, but not at the tip, with dark brown; the back, scapulars and tertiaries dark brown, a few of the feathers with yellowish centres; remainder of the plumage white; the feathers of the occiput lengthened but not forming a conspicuous crest.

Iris bright yellow; orbital skin and gape greenish yellow; the margins of the upper mandible to within an inch of the tip, the central portion and tip of the lower yellow; remainder of the bill black; legs and feet greenish, with some yellow about the joints; claws horn-colour. In the young bird the whole bill is reddish flesh-colour, and the legs and feet are bright green.

Length 19 inches, tail 3, wing 8·5, tarsus 2·3, bill from gape 3·1. The female is of about the same size.

The Pond-Heron is one of the commonest of the family, being found in every part of the Province except on the higher hills, and Capt. Wardlaw Ramsay observed it in Karennee.

It is found over the whole peninsula of India with Ceylon and in the Indo-Burmese countries. It is not recorded from China, but Dr. Tiraud states that it is common in Cochin China. In the Malay peninsula its distribution is unknown; but inasmuch as Mr. Davison states that it is common down to the extreme south of Tenasserim, it is not likely to stop short there, but also to be found in a considerable portion of the peninsula.

This small Heron is remarkable for its tameness and indifference to man. As long as it rests on the ground the colour of its plumage causes it to escape notice; but when it starts up, its white wings render it a conspicuous object. It breeds from May to August, making its nest in trees quite close to houses, and laying four to six blue eggs.

618. ARDEOLA PRASINOSCELES.

THE CHINESE POND-HERON.

Ardeola prasinosceles, *Swinh. Ibis*, 1860, p. 64; *id. P. Z. S.* 1871, p. 413; *Hume, S. F.* ii. p. 483; *Bl. B. Burm.* p. 160; *David et Oust. Ois. Chine*, p. 443; *Hume & Dav. S. F.* vi. p. 481; *Anders. Yunnan Exped.* p. 689; *Hume, S. F.* viii. p. 114. *Ardea leucoptera*, *apud Hume, S. F.* viii. p. 161.

Description.—*Male and female in summer plumage.* Chin and throat pure white; the whole head, a long pointed occipital crest and the whole neck rich vinous chestnut; breast-feathers very long and soft, deep chestnut tinged with purple; remainder of lower plumage white; back and scapulars with very long disintegrated feathers black tinged with purple; the whole of the wings, tail, rump and upper tail-coverts white; the wing-coverts slightly tinged with buff, and the primaries mottled with brown at their tips.

In *nonbreeding-plumage* both sexes resemble *A. grayi* very closely; the back, scapulars and tertiaries are, however, a richer brown with a tinge of chocolate or rufous, whereas in *A. grayi* these parts are a plain brown tinged with ashy.

Length about 18 inches, tail 3·1, wing 8·6, tarsus 2·2, bill from gape 3·4, crest 4.

I have drawn up the above description from a series of Mr. Swinhoe's birds in Mr. Seeböhm's collection. The only point of difference that I can find in the nonbreeding-plumage between this and the preceding species is that pointed out above.

In a male bird shot by Mr. Davison in April the irides were bright yellow; one third of the bill from tip black, then yellow, gradually shading to pale blue at the base of upper mandible; facial skin, gape and base of lower mandible greenish yellow; feet pale orange; legs and nude portions of tibia similar, but with a pinkish tinge; claws pale brownish green.

An allied species from Java and Borneo is *A. speciosa*; in breeding-plumage it has the head, back and sides of the neck pale ferruginous buff, the crest white, and the breast chestnut.

The Chinese Pond-Heron was obtained by Mr. Davison in the southern portion of Tenasserim, where it appears to be rare.

It is met with in Southern China and in Cochin China; and Mr. Davison observed it at Tonka in the Malay peninsula. Dr. Anderson also procured it at Bhamo in Independent Burmah.

Plate 911 of the Pl. Enlum. represents an *Ardeola* in winter plumage; and it will always, I imagine, remain a matter of doubt to which of the

two species, the present or the preceding, it refers. It may even represent the winter plumage of *A. speciosa*, for not much importance can be attached to the locality "Malacca." On the whole, I think it better to adhere to Mr. Swinhoe's clearly defined name and to reject Boddaert's.

Genus BUTORIDES, *Bl.*

619. BUTORIDES JAVANICA.

THE LITTLE GREEN BITTERN.

Ardea javanica, *Horsf. Trans. Linn. Soc.* xiii. p. 190. *Butorides javanica*, *Jerd. B. Ind.* ii. p. 752; *Wald. Trans. Zool. Soc.* viii. p. 100; *Hume, Nests and Eggs*, p. 620; *Salvad. Ucc. Born.* p. 351; *Hume, S. F.* ii. p. 310, iii. p. 191; *Bl. B. Burm.* p. 160; *Hume & Dav. S. F.* vi. p. 483; *David et Oust. Ois. Chine*, p. 442; *Legge, Birds Ceylon*, p. 1153; *Anders. Yunnan Exped.* p. 689; *Cripps, S. F.* vii. p. 308; *Hume, S. F.* viii. p. 114; *Bingham, S. F.* ix. p. 197; *Oates, S. F.* x. p. 243; *Kelham, Ibis*, 1882, p. 195.

Description.—*Male and female.* Forehead, crown, nape and long occipital crest glossy greenish black; the upper part of the ear-coverts and a line from the eye below the ear-coverts black; the remainder of the ear-coverts, the cheeks, chin and throat greyish or yellowish white; remainder of the head, the whole neck and the whole under plumage dark ashy, the centre of the fore neck and breast fulvous-white; back and scapulars purplish green, the feathers lengthened and pointed; rump brown, slightly rufescent; upper tail-coverts greenish brown; tail dark ashy brown; wing-coverts dark glossy green, narrowly margined with whitish; quills slaty brown, more or less tinged with green on the outer webs and becoming entirely green on the tertiaries; the secondaries narrowly tipped with whitish.

Iris yellow; facial skin green; upper mandible black, with a longitudinal yellow streak on the margins below the nostrils; gape greenish brown; lower mandible greenish yellow, more or less black along the edges; legs and toes green, the front of the tarsus and toes dusky; soles orange; claws horn-colour.

Length 18 inches, tail 2·6, wing 7·8, tarsus 2, bill from gape 3·1. The female is of the same size.

The Little Green Bittern is found over the whole of Burmah on the banks of rivers and swamps where there is brushwood.

It occurs over the greater part of India, Ceylon and the Andaman Islands, in the Indo-Burmese countries, China, Cochin China, the Malay peninsula and islands as far as Australia, and ranging to some of the

further islands in the Pacific Ocean. In China and Japan a similar but larger species occurs, which has been named *B. macrorhyncha*. Specimens from India are much duller in coloration as a rule than *B. javanica* from Burmah and Java.

This Bittern is very abundant in all the wooded streams of Burmah, concealing itself during the day in bushes and coming out to feed at dusk. I have never found its eggs; but it probably breeds in July, making its nest in low bushes and reeds. Its eggs are greenish white.

Genus ARDEIRALLA, Verr.

620. ARDEIRALLA FLAVICOLLIS.

THE BLUE BITTERN.

Ardea flavicollis, Lath. Ind. Orn. ii. p. 701; Hume, Nests and Eggs, p. 621.

Ardetta flavicollis, Jerd. B. Ind. ii. p. 753; Bl. B. Burm. p. 160; Hume, S. F. iii. p. 191; Wald. Trans. Zool. Soc. ix. p. 236; David et Oust. Ois. Chine, p. 446; Hume & Dav. S. F. vi. p. 483; Cripps, S. F. vii. p. 308; Hume, S. F. viii. p. 114; Bingham, S. F. ix. p. 198; Oates, S. F. x. p. 243. *Ardeiralla flavicollis*, Salvad. Ucc. Born. p. 353; Legge, Birds Ceylon, p. 1159.

Description.—*Male and female.* General colour of the plumage ashy blue; the feathers of the scapulars and breast lengthened, those of the head and neck soft and very ample; chin and throat white, the feathers tipped with chestnut; a broad yellowish band down each side of the neck more or less concealed or diminished in extent by the overlapping of the feathers of the fore neck, each of which is whitish on outer web, chestnut on the inner and broadly tipped with black; feathers of the breast ashy blue like the general plumage, but with each feather edged white on the outer web.

The *young bird*, while possessing the general features of the adult plumage, is chiefly brown, the feathers edged with rufous.

Bill dusky reddish brown, lighter below; facial skin purplish brown; eyelids bluish; iris golden brown or pale red; legs dark brown; claws dark horn-colour.

Length 24 inches, tail 2·8, wing 8·2, tarsus 2·9, bill from gape 4. The female is of the same size.

The Blue Bittern is common over the whole of Pegu, both in the plains and in the hills, and probably it will also be found to be abundant in Arrakan. Mr. Davison states that it is rare in Tenasserim; but he procured it at several widely separated localities, and it will therefore be probably found scattered over the whole Division.

It occurs over the greater part of the Indian peninsula and Ceylon, the

Indo-Burmese countries, China, Cochin China, the Malay peninsula and the islands nearly up to Australia, where it appears to be replaced by a closely allied race, *A. australis*, Cuv.

This Bittern is mostly found in plains of grass, paddy-fields and swamps; but I met with it in the streams of the Pegu hills, where it was tolerably abundant. It is chiefly nocturnal in its habits. I have frequently found its nest in July—a shallow structure of sticks placed in bamboo bushes or on cane-brakes, and containing three or four pale green eggs.

Genus ARDETTA, *G. R. Gray.*

621. ARDETTA CINNAMOMEA.

THE CHESTNUT BITTERN.

Ardea cinnamomea, *Gm. Syst. Nat.* i. p. 643. *Ardetta cinnamomea*, *Jerd. B. Ind.* ii. p. 755; *Hume, Nests and Eggs*, p. 622; *id. S. F.* ii. p. 311; *Salvad. Ucc. Born.* p. 354; *Bl. B. Burm.* p. 160; *Oates, S. F.* v. p. 168; *David et Oust. Ois. Chine*, p. 447; *Hume & Dav. S. F.* vi. p. 483; *Cripps, S. F.* vii. p. 308; *Hume, S. F.* viii. p. 114; *Bingham, S. F.* viii. p. 197, ix. p. 198; *Oates, S. F.* x. p. 243; *Kellham, Ibis*, 1882, p. 195. *Ardeiralla cinnamomea*, *Legge, Birds Ceylon*, p. 1162.

Description.—*Male.* The whole upper plumage, wings and tail deep chestnut; chin and throat white tinged with fulvous; sides of the face chestnut; the whole lower plumage pale chestnut, darker on the flanks and the outside of the thighs; under tail-coverts whitish; a broken central streak down the front of the neck brown, formed by each feather having a patch on the inner web; an irregular brownish-black breast-band continued as a complete collar round the shoulders, formed by each feather having a central patch of that colour; the forehead tinged with purple.

The *female* has the forehead, crown and nape purplish brown; sides of the head pale reddish brown; chin and throat whitish; fore neck pale buff, a blackish line tinged with rufous running down its whole length from the throat to the breast; sides of the neck buff, each feather broadly edged with yellowish; breast and sides of the body buff, each feather centred with dark brown; abdomen, vent and under tail-coverts white tinged with buff; under wing-coverts buff streaked with brown; quills chestnut; primary-coverts chestnut with dusky centres; upper wing-coverts, tertiaries and scapulars dull chestnut barred with light buff; tail dull chestnut; back and rump brown with a rufous tinge.

Eyelids and facial skin reddish purple; bill nearly all yellow, the culmen alone being dark brown; legs and toes yellowish green; claws brown; iris yellow to pale red. The female has the facial skin, the margins of the

upper mandible and nearly the whole lower mandible yellow; remainder of bill black; iris yellow; legs and toes green; the back of the tarsus and the soles of the toes yellow; claws yellowish brown.

Length 23 inches, tail 2, wing 6.2, tarsus 2, bill from gape 2.8. The female is rather smaller.

The Chestnut Bittern is found distributed over the whole of Burmah, but somewhat capriciously. It is abundant in the plains of Southern Pegu, but rare or altogether absent in the northern portions; Captain Wardlaw Ramsay observed it at Tonghoo, however, and also at Rangoon. Mr. Davison observed it in Tenasserim from Amherst down to Bankasoon. Mr. Blyth states that it is common in Burmah, and consequently he is likely to have received it from Arrakan.

It occurs over the greater part of India and Ceylon, in the Andaman Islands, the Indo-Burmese countries, China, Cochin China, the Malay peninsula and islands to Java and the Philippines.

A. eurhythmia is an allied species of great beauty which occurs in China and North Asia.

This Bittern is met with in plains of grass and in paddy-fields; it is nocturnal in its habits, very shy and seldom seen. I have frequently found its nest in July and August—a small structure of grass placed on the ground at the edges of swamps or on the small embankments between paddy-fields where the vegetation is rank. The eggs, generally six in number, are dull white.

622. ARDETTA SINENSIS.

THE LITTLE YELLOW BITTERN.

Ardea sinensis, *Gm. Syst. Nat.* i. p. 642. *Ardetta sinensis*, *Jerd. B. Ind.* ii. p. 755; *Wald. Trans. Zool. Soc.* viii. p. 99; *Hume, Nests and Eggs*, p. 623; *id. S. F.* i. p. 308, ii. p. 311, iii. p. 193; *Salvad. Ucc. Born.* p. 354; *Bl. B. Burm.* p. 160; *David et Oust. Ois. Chine*, p. 448; *Legge, Birds Ceylon*, p. 1156; *Hume & Dav. S. F.* vi. p. 484; *Oates, S. F.* vii. p. 52; *Cripps, S. F.* vii. p. 308; *Hume, S. F.* viii. p. 114; *Oates, S. F.* x. p. 243; *Kelham, Ibis*, 1882, p. 196.

Description.—*Male.* Forehead, crown and nape, primaries, secondaries and tail dark slaty brown or nearly black; sides of the head and neck cinnamon-rufous, the hind neck of a deeper tint; chin nearly white; throat and whole lower plumage pale fulvous, deeper on the fore neck, the lower breast with a broad partially concealed brown or blackish band; under wing-coverts white; back and scapulars rufous earthy brown; wing-coverts and tertiaries sandy fulvous; rump ashy.

The *female* has the sides of the head and neck less bright and more of

the colour of the fore neck, and the whole lower plumage is a yellower fulvous.

The *young* have the whole upper plumage yellowish broadly streaked with brown, and the lower plumage white streaked with pale cinnamon.

Iris yellow; eyelids and facial skin green; upper mandible dark brown on the culmen and pinkish brown on the margins; lower mandible pinkish brown, turning to green towards the tip; the toes and tibio-tarsal joint pale yellow; tarsus dull flesh-colour; claws horn-colour.

Length 15 inches, tail 2, wing 5·5, tarsus 1·8, bill from gape 2·6. The female is of the same size.

The Little Yellow. Bittern is spread over the whole of Burmah, and is tolerably abundant in suitable localities.

It is met with over the greater part of India and Ceylon, the Indo-Burmese countries, China, Cochin China, the Malay peninsula, Java, Borneo, Celebes and the Philippine Islands.

This very small Bittern occurs in paddy-fields and other thick cover where the ground is swampy; it is very shy and seldom observed. I found its nest in August on the bank of the Pegu river, a pad of grass placed on a tangled mass of elephant-grass, and containing four pale green eggs.

Genus BOTAURUS, *Steph.*

623. BOTAURUS STELLARIS.

THE COMMON EUROPEAN BITTERN.

Ardea stellaris, *Linn. Syst. Nat.* i. p. 239; *Jerd. B. Ind.* ii. p. 757; *Hume, Nests and Eggs*, p. 624; *id. S. F.* i. p. 256; *Dresser, Birds Eur.* vi. p. 281, pl.; *Butler, S. F.* iv. p. 24; *David et Oust. Ois. Chine*, p. 446; *Hume, S. F.* viii. p. 114; *Oates, S. F.* x. p. 244.

Description.—*Male and female.* General colour of the plumage ochraceous yellow; the forehead, crown and a moustachial streak blackish brown; the front of the neck with several longitudinal brown bands; the sides and back of the neck and the feathers above the breast, the whole of which are very soft, broad and long, finely barred with black; the whole upper plumage, tertiaries, scapulars, wing-coverts and tail beautifully marked with blackish; quills brown, irregularly banded with rufous; lower plumage boldly streaked with black.

Iris yellow; eyelids greenish; lower mandible and margins of the upper pale green; remainder of the upper mandible and the facial skin smoky brown; legs green with a tinge of yellow; claws horn-colour.

Length 28 inches, tail 4·5, wing 12·5, tarsus 3·8, bill from gape 3·8. The female is rather smaller.

The Common European Bittern is apparently a rare bird in Burmah. Captain Jenkins shot two at Zeinganein, near Pegu, on the 2nd of December, and sent them to me the same day. I have heard of no other instance of its occurrence in Burmah. Captain Jenkins shot these two birds in thick paddy growing on the edge of an extensive swamp, and he observed others at the same time.

It is met with over the greater part of Europe, Africa and Asia, China and Burmah being about its eastern limit in the latter continent.

This Bittern is a nocturnal bird, lying hidden in dense vegetation during the day; its note is a loud croak, but during the breeding-season it utters a very peculiar booming sound. In Europe its nest is placed on the ground in reed-beds; and it lays three or four eggs, of a brownish-olive colour.

Genus NYCTIARDEA, *Swains.*

624. NYCTIARDEA NYCTICORAX.

THE NIGHT-HERON.

Ardea nycticorax, *Linn. Syst. Nat.* i. p. 235. *Ardea grisea*, *Linn. Syst. Nat.* i. p. 239. *Nycticorax griseus*, *Jerd. B. Ind.* ii. p. 758; *Salvad. Ucc. Born.* p. 356; *Hume, S. F.* iv. p. 415; *Bl. B. Burm.* p. 161; *Oates, S. F.* v. p. 168; *Legge, Birds Ceylon*, p. 1165; *Anders. Yunnan Exped.* p. 690; *Hume & Dav. S. F.* vi. p. 484; *Dresser, Birds Eur.* vi. p. 269, pl.; *Hume, S. F.* viii. p. 114; *Scully, S. F.* viii. p. 361; *Oates, S. F.* x. p. 244. *Nyctiardea nycticorax*, *Hume, Nests and Eggs*, p. 624; *Hume, S. F.* iii. p. 192; *Armstrong, S. F.* iv. p. 350; *David et Oust. Ois. Chine*, p. 444.

Description.—*Adult.* Crown, nape, a narrow line down the back of the neck, the back and scapulars black glossed with metallic green; feathers of the nape lengthened; a few very long narrow feathers springing from the nape white; forehead, a streak over the eye, sides of the face, chin and throat white; lower plumage white tinged with grey or pale vinous; rump, upper tail-coverts, tail, the whole of the wings and the sides of the neck deep grey with a vinous tinge.

The *young* have no crest; the upper plumage is ashy brown, the quills and the wing-coverts with large whitish spots at the tips; the other parts more or less centrally streaked with rufescent white; the sides of the head and neck and the whole lower plumage pale fulvous, boldly streaked with ashy brown.

Iris bright crimson; eyelids and facial skin dull livid; bill black; legs and toes pale rufous; claws black. In the nonbreeding-season the base of the bill appears to be greenish, and in some birds the legs are described as being yellowish.

Length 23 inches, tail 3·6, wing 11·5, tarsus 3, bill from gape 4. The sexes appear to be of the same size.

The Night-Heron is extremely abundant over the whole of the plains of British Burmah.

It is found over the greater part of Europe, Africa, North America and Asia, extending in the latter continent down to the Malay islands.

This species is met with in immense flocks, resting during the day in trees and bamboos near streams, and very frequently in the fine tall hedges surrounding Burmese monasteries. Towards dusk they fly to their feeding-grounds, uttering those loud quacking notes which must be familiar to every one residing in the country. In India, and probably in Burmah also at times, they construct their nests in trees; but at Myitkyo I found them breeding in reed-swamps, with Cormorants and other water-birds, in July and August. The eggs are pale green in colour.

Genus GORSACHIUS, *Puchér.*

625. GORSACHIUS MELANOLOPHUS.

THE MALAYAN TIGER BITTERN.

Ardea melanolopha, *Raffl. Trans. Linn. Soc.* xiii. p. 326. *Nycticorax limnophilax*, *Temm. Pl. Col.* 581. *Nycticorax goisagi*, *Temm. Pl. Col.* 582. *Ardea goisagi*, *Temm. et Schleg. Faun. Jap., Aves*, p. 116, pl. 70. *Botaurus limnophilax*, *Salvad. Ucc. Born.* p. 355. *Goisakius melanolophus*, *Hume, S. F.* ii. p. 312; *Bourdillon, S. F.* vii. p. 524; *Hume, S. F.* viii. p. 114; *Kellham, Ibis*, 1882, p. 196. *Gorsachius melanolophus*, *Salvad. Ucc. Born.* p. 355; *Bl. B. Burm.* p. 160; *Wald. Trans. Zool. Soc.* ix. p. 238; *David et Oust. Ois. Chine*, p. 444; *Legge, Birds Ceylon*, p. 1169; *Hume & Dav. S. F.* vi. p. 484.

Description.—*Adult male.* Forehead, crown and a long occipital crest purplish black; sides of the head and the whole of the back of the neck chestnut; back, rump, wing-coverts, scapulars and tertiaries dull chestnut, closely barred with narrow wavy black lines; winglet black, broadly tipped with white; the first two or three primary-coverts black tipped with white, the others chestnut tipped with white; primaries slaty black tipped with white and with a subterminal patch of chestnut, the white decreasing and the chestnut increasing from the first primary to the others; secondaries broadly rufous near the tips and narrowly tipped with white; upper tail-

coverts and tail slaty brown ; chin and throat whitish ; front and sides of the neck and the breast dull rufous-grey, the centre of the throat and the middle line of the neck and breast streaked with black, light buff and chestnut ; remainder of the lower plumage dull chestnut, marked in various ways with black lines and bars and with white patches ; under tail-coverts nearly pure white.

Another bird, probably an adult female, is in the same plumage as the male above described, except that the whole head is chestnut and there is no crest of lengthened and pointed feathers.

Another bird with a long pointed crest has the forehead, crown, and crest black, each feather with one and sometimes two triangular white patches ; the whole upper plumage dark brown stippled and mottled with white, the feathers of the back with rather large white spots, one on each feather ; sides of the head, sides of the occiput and sides of the neck dark brown boldly marked with white ; quills and tail much the same as in the adult male above described ; lower plumage an indescribable mixture of rufescent white, pale chestnut and dark brown.

The plumage of this bird is not well understood, and I have described above three beautiful specimens in the British Museum which I take to be respectively, in the order they are described, the adult male, the adult female and the young. Mr. Hume (*l. c.*) has elucidated the question in some measure ; but he procured too few specimens in the Nicobar Islands to enable him to describe fully the various stages of plumage.

Female. Legs and feet dull green ; claws horny ; irides greenish yellow ; the upper mandible horny brown edged with dull green ; the lower mandible greenish horny. (*Hume.*)

Male. Bare skin in front of the eye and about the base of the bill green ; legs and feet greenish olive ; claws pale plumbeous. (*Bourdillon.*)

Length 19 inches, tail 3·5, wing 10·3, tarsus 2·5, bill from gape 2·3. The female appears to be smaller.

The Malayan Tiger Bittern is stated by Mr. Blyth to have occurred in the island of Ramree off the coast of Arrakan. Mr. Davison observed it in the extreme south of Tenasserim, but did not secure a specimen.

It has been met with in Ceylon, in Southern India and in the Nicobar Islands, at Malacca and in Sumatra, and it occurs from Japan down the coast of China and Cochin China to the Philippine Islands, and thence to the Pelew Islands in the Pacific Ocean.

This Tiger Bittern appears to frequent forest-streams and to be nocturnal in its habits. Little, however, is known about it.

Family CICONIIDÆ.

Genus LEPTOPTILUS, *Less.*

626. LEPTOPTILUS ARGALA.

THE ADJUTANT.

Ardea dubia, *Gm. Syst. Nat.* i. p. 624 (part.). *Ardea argala*, *Lath. Ind. Orn.* ii. p. 676. *Leptoptilos argala*, *Jerd. B. Ind.* ii. p. 730; *Bl. & Wald. B. Burm.* p. 158; *Wardlaw Ramsay, Ibis*, 1877, p. 470; *Hume & Dav. S. F.* vi. p. 468; *Bingham, S. F.* vii. p. 25; *Hume, S. F.* viii. p. 114; *Bingham, S. F.* ix. p. 197; *Oates, S. F.* x. p. 242. *Leptoptilus dubius*, *Salvad. Ucc. Born.* p. 357; *Hume, Nests and Eggs*, p. 605; *Oates, S. F.* iii. p. 346. *Leptoptilus giganteus* (*Forst.*), *Oates, S. F.* vii. p. 50.

Description.—*Male and female in breeding-plumage.* Head, neck and pouch nearly naked, there being only a few scattered hairs or soft feathers here and there; breast, abdomen, sides of the body, vent and the under wing-coverts immediately next the body white; remainder of the under wing-coverts dark grey; under tail-coverts soft, long and decomposed, white tipped with black; the whole upper plumage, wings and tail black; the greater wing-coverts and the tertiaries greyish white, the basal portions white and the outer webs narrowly edged with the same.

In *nonbreeding-plumage* the tertiaries and greater wing-coverts become dark, like the other portions of the wing.

Bill pinkish flesh-colour; skin of the head and chin pale reddish brown; skin of the forehead and at the base of the bill rough and blackish, presenting the appearance of having been scorched; neck saffron-yellow, turning to pink at the end of the pouch, the whole of which is spotted with black; loose skin at the base of the back of the neck brick-red; iris yellowish white; eyelids plumbeous, the edges pink; legs and toes brown, the edges of the reticulations white; claws black.

Male: length 60·5 inches, tail 12·5, wing 32, tarsus 13, bill from gape 14. *Female*: length 52, tail 11, wing 28·5, tarsus 11, bill from gape 11. The pouch, when lowered, is frequently a foot or more in length.

The Adjutant or Gigantic Stork is more or less distributed over the whole Province; but it is most abundant in the large plains of Southern Pegu, where they arrive in immense numbers in October and leave again in February or March.

It is met with over the greater part of India and the Indo-Burmese

countries, the Malay peninsula, Siam, Cochin China, Sumatra, Java and Borneo.

This immense Stork is very abundant during the cold weather, visiting the plains of Pegu in large flocks, and a few apparently remaining all the year through. It is found in paddy-fields, grass-plains and swamps—anywhere, in fact, where its food (frogs, reptiles and fish) is abundant. It is met with in the streets of the large Indian towns, being there semi-domesticated. I found it breeding in the forests west of Shwaygheen and north of Paghein in November, constructing a large nest of sticks in very lofty wood-oil trees and laying three whitish eggs. It breeds in company with Pelicans, and the eggs of both are very similar in size and colour; but the interior skin of the Adjutant's eggs is dark green, of the Pelican's white; and therefore the eggs can be safely separated at a glance.

627. LEPTOPTILUS JAVANICUS.

THE LESSER ADJUTANT.

Ciconia javanica, Horsf. *Trans. Linn. Soc.* xiii. p. 188. *Leptoptilus javanicus*, Jerd. *B. Ind.* ii. p. 732; *Salvad. Ucc. Born.* p. 358; *Bl. B. Burm.* p. 159; *Hume, S. F.* iii. p. 189; *David et Oust. Ois. Chine*, p. 449; *Hume & Dav. S. F.* vi. p. 469; *Legge, Birds Ceylon*, p. 1113; *Bingham, S. F.* vii. p. 25; *Oates, S. F.* vii. p. 51; *Sharpe, Ibis*, 1879, p. 72; *Hume, S. F.* viii. p. 114, ix. p. 235; *Parker, S. F.* ix. p. 483; *Oates, S. F.* x. p. 242; *Kelham, Ibis*, 1882, p. 190.

Description.—*Male and female.* The head and neck covered with a few soft decomposed feathers, which are closer together on the nape and hinder neck; crown of the head bony, smooth and perfectly bare; neck-ruff and whole lower plumage white; the whole upper plumage, wings and tail dark brown, with a slightly greenish gloss in places and the smaller feathers more or less edged paler.

The *fully-fledged nestling* has the head naked to about half an inch behind the eye; the throat and neck are sparsely covered with light brown down; the nape and hind neck are thickly covered with long dark-brown feathers; the under tail-coverts are much developed and decomposed; these, with the whole remaining plumage, are white, except the wings, tail and scapulars, which are blackish with a metallic gloss.

Bill dirty yellowish; bare top of head dirty green; nude face and neck much tinged with yellow and at seasons with red; irides whitish; legs dusky black. (*Jerdon.*)

Length about 54 inches, tail 10, wing 25, tarsus 9, bill from gape 10.5. The female is probably smaller.

The Lesser Adjutant is distributed over the whole Province, but is comparatively scarce and met with singly, not in flocks.

It is found over a considerable portion of India and Ceylon, the Indo-Burmese countries, Eastern China, Cochin China, the Malay peninsula, Sumatra, Java and Borneo.

This species appears to be a constant resident in Burmah, but is nowhere very common. It frequents the same localities as the last, but, unlike it, is never met with in the streets of Indian towns. I found its nest in November in the forests west of Shwaygheen; and neither the nest nor the eggs differed from those of the Adjutant. Both these Storks also breed on the limestone rocks near Moulmein.

Genus XENORHYNCHUS, Bonap.

628. XENORHYNCHUS ASIATICUS.

THE BLACK-NECKED STORK.

Mycteria asiatica, Lath. Ind. Orn. ii. p. 670. *Ardea indica*, Lath. Ind. Orn. ii. p. 701. *Mycteria australis*, Shaw, Trans. Linn. Soc. v. p. 34; Jerd. B. Ind. ii. p. 734. *Mycteria indica*, Hume, Nests and Eggs, p. 607; id. S. F. iii. p. 189. *Xenorhynchus australis*, Bl. & Wald. B. Burm. p. 158; Hume & Dav. S. F. vi. p. 469; Oates, S. F. vii. p. 51; Hume, S. F. viii. p. 114; Parker, S. F. ix. p. 484; Legge, Birds Ceylon, p. 1117; Oates, S. F. x. p. 242.

Description.—*Male and female.* The whole head and neck black, glossed with purple and blue; nape coppery brown, with a rich purple-and-rufous gloss; scapulars, tertiaries, greater wing-coverts and tail black, more or less glossed with blue and purple; remainder of the plumage white; greater under wing-coverts black.

The *young bird* has the whole head and neck buffy brown, the feathers soft and downy; feathers round the eye dark brown; body-plumage white, with a brown collar across the upper breast and a brown patch on the rump; back and lesser wing-coverts beautifully marked with alternating brown and white lines; the coverts immediately next the body nearly pure white; greater coverts tipped with white; scapulars and wings glossy greenish black; the bases of the quills white; tail blackish.

Legs and toes coral-red; claws dusky pink; bill black; gular skin and eyelids dusky purple; iris bluish brown. The young have the legs and toes brown and the culmen at first quite straight, not turned up as in the adult.

Length 52 inches, tail 9.5, wing 24, tarsus 13, bill from gape about 12. The female is of about the same size.

The Black-necked Stork is generally distributed over Pegu; and Mr. Blyth states that it is found in Arrakan and Tenasserim; but in the latter Division Mr. Davison observed it only at Pahpoon.

It is found over the whole peninsula of India and Ceylon, and probably in all the Indo-Burmese countries. It ranges down the Malay peninsula, through the islands to Australia, and extends eastwards to Cochin China.

This handsome Stork is a resident, and is met with singly or in pairs in swampy plains and marshes. I found its nest in Southern Pegu in December and January, a structure of sticks placed in large trees. The eggs, four in number, are white with a green lining.

Genus DISSURA*.

629. DISSURA EPISCOPUS.

THE WHITE-NECKED STORK.

Ardea episcopus, Bodd. *Tabl. Pl. Enl.* p. 54. *Ardea leucocephala*, Gm. *Syst. Nat.* i. p. 642. *Ciconia leucocephala*, Jerd. *B. Ind.* ii. p. 737. *Melanopelargus episcopus*, Hume & Henders. *Lah. to Yark.* p. 295; *Hume, Nests and Eggs*, p. 609; *Salvad. Ucc. Born.* p. 356; *Hume, S. F.* iii. p. 189; *Hume & Dav. S. F.* vi. p. 469. *Ciconia episcopus*, Bl. *B. Burm.* p. 158; *Wardlaw Ramsay, Ibis*, 1877, p. 470. *Dissura episcopa*, Hume, *S. F.* viii. p. 114; *Rainey, S. F.* viii. p. 417; *Scully, S. F.* viii. p. 359; *Legge, Birds Ceylon*, p. 1119; *Oates, S. F.* x. p. 243.

Description.—*Male and female.* Crown, nape and sides of the nape black; neck, tail, vent and under tail-coverts white; remainder of plumage black, beautifully glossed with reddish purple on the lower neck, breast, abdomen, upper back and lesser wing-coverts.

Iris crimson; eyelids and facial skin plumbeous; bill in general black, tinged with red on the culmen, the tips and the margins; legs and toes red; claws reddish horn-colour.

Length 36 inches, tail 8, wing 20·5, tarsus 7, bill from gape 6·8. The female is of the same size.

The White-necked Stork is distributed over the whole Province in suitable localities, and is a constant resident. It is met with over the greater part of India and Ceylon, the Indo-Burmese countries, Cochin China, the Malay peninsula, Sumatra, Java, Borneo and Celebes.

This beautifully coloured Stork is tolerably abundant in the plains, being

* I cannot discover who is the author of this name. It appears to have been first used by Mr. Hume (*l. c.*).

found generally in small flocks and sometimes singly. I have never taken its eggs. In India it breeds on trees, laying four pale bluish-white eggs.

Dr. Mason includes *Ciconia alba* in his list of the birds of Burmah; but I think there must be some error, for I have never heard of any one having seen it in the Province. In case, however, that it should occur, I append a short description of it*.

Family TANTALIDÆ.

Subfamily ANASTOMATINÆ.

Genus ANASTOMUS, *Bonn.*

630. ANASTOMUS OSCITANS.

THE SHELL-IBIS.

Ardea oscitans, *Bodd. Tabl. Pl. Enl.* p. 55. *Anastomus oscitans*, *Jerd. B. Ind.* ii. p. 765; *Hume, Nests and Eggs*, p. 630; *Bl. B. Burm.* p. 158; *Hume, S. F.* iii. p. 192; *Bingham, S. F.* iv. p. 212; *Cripps, S. F.* vii. p. 310; *Hume, S. F.* viii. p. 114; *Legge, Birds Ceylon*, p. 1103; *Oates, S. F.* x. p. 244.

Description.—The nestling is a light grey, a little darker on the head and neck, where the feathers are short and the webs hair-like; the upper back, winglet, primaries, secondaries, tertials, scapulars and tail are black, shot with green and purple reflections; the naked skin about the chin and base of the beak and the orbits are greenish black; the bill dark green; the legs brown, tinged with pinky red (but generally covered by a whitish scurf of dirt and droppings) and the irides brown. As the bird grows older, the grey assumes a lighter colour, the black of the back disappears, and the irides get a darker brown. In May, through an actual change of colour in the feathers themselves, the grey becomes pure white; and this is the breeding-plumage, which lasts till the beginning of September, when the bird moults and again assumes the grey phase of plumage. (*Bingham.*)

*

CICONIA ALBA.

THE WHITE STORK.

Description.—The whole plumage white, except the scapulars, quills and greater wing-coverts.

Length about 42 inches, tail 10, wing 24, tarsus 8, bill at front 7·5.

Length 32 inches, tail 6·5, wing 16·5, tarsus 5·7, bill from gape 6. The female is of the same size.

The Shell-Ibis is said by Mr. Blyth to occur in Arrakan, and I procured one specimen at Thayetmyo in the Pegu Division.

It is found over the whole peninsula of India and Ceylon. Dr. Tiraud states that it is common in Cochin China, and it probably therefore inhabits the whole of the Indo-Burmese countries.

The remarkable bill of this Ibis will cause it always to be easily recognized, the two mandibles failing to meet in the middle and a large space being left between them. It occurs in flocks, frequenting marshes and paddy-fields, and feeding on shells, which are held in the space between the mandibles and crushed. It breeds in India in the rains, July and August, in large societies, making a nest of sticks in high trees and laying from two to five white eggs.

Subfamily TANTALINÆ.

Genus TANTALUS, *Linn.*

631. TANTALUS LEUCOCEPHALUS.

THE PELICAN IBIS.

Tantalus leucocephalus, *Penn. in Forst. Ind. Zool.* p. 20, pl. 10; *Gm. Syst. Nat.* i. p. 649; *Jerd. B. Ind.* ii. p. 761; *Hume, Nests and Eggs*, p. 626; *Bl. B. Burm.* p. 158; *David et Oust. Ois. Chine*, p. 452; *Hume & Dav. S. F.* vi. p. 484; *Cripps, S. F.* vii. p. 309; *Hume, S. F.* viii. p. 114; *Newton, S. F.* viii. p. 415; *Legge, Birds Ceylon*, p. 1100; *Oates, S. F.* x. p. 244.

Description.—*Male and female.* Head, neck and the whole body white; the head naked to about an inch behind the eyes; the feathers of the head and neck short and downy; the rump and scapulars tinged with roseate; the under wing-coverts, the lesser upper wing-coverts and a broad band across the upper part of the abdomen black, each feather edged or tipped with white; primaries and their coverts, secondaries, winglet and tail black glossed with violet; greater wing-coverts pure white, those nearest the body tinged with red; tertiaries pink, varying in intensity in different individuals according to age and season.

The *young birds* have the cheeks and ear-coverts grey; the head and neck brown; the feathers short, soft and pointed; lower plumage smoky white, darker across the abdomen and darker still on the sides of the body; back, scapulars, wing-coverts and tertiaries hair-brown; rump and upper

tail-coverts nearly pure white ; wings and tail black ; the face is less naked than in the adult, and the extent of the bare skin increases with age.

Iris pale yellow ; bill and facial skin orange-yellow, plumbeous at the base of the bill ; legs, toes and claws brown. In the young the iris is brown ; skin of the chin orange, turning to pinkish on the edge of the throat ; facial skin and basal half of bill orange, terminal half dull yellowish brown ; legs and feet brown.

Length 40 inches, tail 6·5, wing 20, tarsus 9, bill from gape 10. The female is slightly smaller.

The Pelican Ibis is very abundant in the plains of Southern Pegu, where it is a constant resident, and Capt. Wardlaw Ramsay procured it at Tonghoo. Mr. Blyth gives it from Arrakan. In Tenasserim Mr. Davison observed it at Tavoy, Mr. Davis at Thatone, and Mr. Hough in the extreme south on the Pakchan river. It is met with over the whole of India and Ceylon, the Indo-Burmese countries, Southern China and Cochin China. South of Tenasserim it is replaced by *T. lacteus*.

This large Ibis is found in large flocks frequenting marshes and inundated paddy-fields. It feeds like a Stork, watching for and pouncing on frogs, small fish and young snakes. It probably breeds on the southern coast of Pegu, for the Burmese near Kyeikpadein know the bird well, and informed me that it nested on tall trees in the plains south of Syriam. In India it breeds in October, making a nest of sticks in trees and laying two to four white eggs.

Subfamily IBIDINÆ.

Genus IBIS, *Lacép.*

632. IBIS MELANOCEPHALA.

THE WHITE IBIS.

Tantalus melanocephalus, *Lath. Ind. Orn.* ii. p. 709. *Threskiornis melanocephalus*, *Jerd. B. Ind.* ii. p. 768 ; *Hume, Nests and Eggs*, p. 632 ; *Oates, S. F.* iii. p. 347. *Ibis melanocephalus*, *Salvad. Ucc. Born.* p. 359 ; *Bl. B. Burm.* p. 158 ; *Elliot, P. Z. S.* 1877, p. 488 ; *David et Oust. Ois. Chine*, p. 452 ; *Hume & Dav. S. F.* vi. p. 484 ; *Hume, S. F.* viii. p. 114 ; *Legge, Birds Ceylon*, p. 1106 ; *Oates, S. F.* x. p. 244.

Description.—*Male and female in breeding-plumage.*—Head and neck naked and black ; the whole plumage white ; the tips of the earlier primaries mottled with brown ; the shafts of the primaries black ; the scapulars

and tertiaries lengthened and decomposed, grey; plumes of the lower neck lengthened.

In winter the scapulars and tertiaries are only slightly lengthened and are not decomposed and the neck-plumes are absent.

Bill black; iris brown; the whole head and neck and the edges of the eyelids dark bluish black; legs and toes glossy black; claws dull black.

Length 31 inches, tail 5·8, wing 15, tarsus 4, bill from gape 7.

The White Ibis occurs plentifully over the plains of Southern Pegu; it is stated by Mr. Blyth to be found in Arrakan and Tenasserim, and in the latter Division was observed by Mr. Davison, who states that it is not uncommon in the plains of the central portion.

It is met with over the greater part of India and Ceylon, the Indo-Burmese countries, Southern China, Siam, Cochin China, the Malay peninsula, Sumatra, Java and Borneo.

This Ibis frequents marshes, paddy-fields and the muddy banks of rivers, going about in large flocks, and searching for its food in the water. It probably breeds in Burmah. In India it constructs a nest of sticks in a tree in June, July or August, and lays two to four pale greenish-white eggs.

I. æthiopica, the Sacred Ibis of Egypt, is closely allied, differing chiefly in having the tips of the primaries greenish black and the tertiaries blacker and more lengthened.

Genus GRAPTOCEPHALUS, *Elliot*.

633. GRAPTOCEPHALUS DAVISONI.

DAVISON'S BLACK IBIS.

Geronticus davisoni, *Hume*, *S. F.* iii. p. 300. *Geronticus papillosus*, *apud Oates*, *S. F.* iii. p. 347. *Inocotis papillosus*, *apud Oates*, *S. F.* v. p. 169. *Graptocephalus davisoni*, *Elliot*, *P. Z. S.* 1877, p. 490; *Hume & Dav.* *S. F.* vi. p. 485; *Hume*, *S. F.* viii. p. 114; *Oates*, *S. F.* ix. p. 300, x. p. 244. *Ibis harmondi*, *Oust. Bull. Soc. Philom.* 1877, p. 28.

Description.—*Male and female.* The head and a portion of the neck naked, the front of the head covered with small warts; the remainder of the neck, the whole lower plumage, the back, scapulars and tertiaries dark brown; rump and upper tail-coverts darker with a greenish lustre, which is also more or less present on the scapulars and under tail-coverts; quills and tail glossy bluish black; the lesser wing-coverts next the body white, forming a conspicuous spot on the wing.

Naked skin of the head and neck blackish brown ; a pure white band encircles the neck at its junction with the head, tinged with blue on the nape ; bill bluish ; iris orange-red ; legs pale coral-red ; claws brown.

Length 30 inches, tail 7·7, wing 15·2, tarsus 3·2, bill from gape 6·2. The female is rather smaller.

This species is very closely allied to the Indian *Inocotis papillosus*, and differs chiefly in being larger and in having a white collar round the upper neck. The Indian bird, in addition, has warts on the back of the head, which *G. davisoni* never has.

Davison's Black Ibis is not uncommon in the plains of Southern Pegu between the Pegu and the Sittang rivers, and it appears to be a constant resident. Mr. Davison observed it in the southernmost portions of Tenasserim.

It occurs in Siam and Cochin China, and Mr. Hume records it from Tonka in the Malay peninsula. *I. papillosus* is said to occur in Borneo ; but as the differences between this bird and *G. davisoni* have only recently been recognized, it is not improbable that the Bornean bird may on re-examination prove to be the present species. After death the conspicuous white neck-collar turns blackish, and all traces of it eventually disappear in rather old skins, so that this feature is not of much service in discriminating the two species. Mr. Blyth records *I. papillosus* from Arrakan ; but until Arrakanese birds have been carefully examined again and been ascertained to belong to that species, I do not think it advisable to include it in this work. I may note that a black Ibis is not uncommon in the plains near Henzadah, west of the Irrawaddy river ; but I have not been able to examine a specimen from that locality.

Davison's Black Ibis usually occurs singly or in pairs, and I do not remember ever to have seen a flock of them. It feeds on the banks of muddy streams and in marshes, and is of a very shy nature. In the hot weather I have seen it on recently burnt-up plains, where, no doubt, insects and small reptiles, deprived of cover, readily fall a prey to this bird, as they do to Kites and many others. I found the nest of this Ibis at Wau, on the banks of the canal, in February ; it was a structure of sticks placed low down in a large tree growing in a wilderness of reeds, and contained two pale blue eggs. The cry of this bird at the breeding-season is very loud and peculiar, and may be heard fully two miles off.

Ibis gigantea, a very large species of Ibis from Cochin China, is not unlikely to be found in Burmah. It is blackish brown with green reflections, and it has the bill yellow and the legs red.

Genus PLEGADIS, *Kaup*.

634. PLEGADIS FALCINELLUS.

THE GLOSSY IBIS.

Tantalus falcinellus, *Linn. Syst. Nat.* i. p. 241. **Scolopax rufa**, *Scop. Ann.* i. p. 93. **Numenius igneus**, *S. G. Gm. Nov. Comm. Petrop.* xv. p. 460, t. 18. **Falcinellus igneus**, *Jerd. B. Ind.* ii. p. 770; *Hume, Nests and Eggs*, p. 635; *id. S. F.* i. p. 257; *Salvad. Ucc. Born.* p. 360; *Bl. B. Burm.* p. 158; *Elliot, P. Z. S.* 1877, p. 503; *Hume, S. F.* viii. p. 114; *Doig, S. F.* viii. p. 377; *Oates, S. F.* x. p. 245. **Ibis falcinellus**, *Hume, S. F.* iii. p. 192; *David et Oust. Ois. Chine*, p. 455. **Falcinellus rufus**, *Anders. Yunnan Exped.* p. 684. **Plegadis falcinellus**, *Dresser, Birds Eur.* vi. p. 335, pl.; *Legge, Birds Ceylon*, p. 1109.

Description.—*Male and female.* Forehead, crown, nape, sides of the face, chin and throat brown glossed with green; the whole lower plumage, the whole neck, back and lesser wing-coverts chestnut; remainder of the plumage black, glossed with bronze, purple and green.

Iris brown, in some mottled with grey; bill dark livid brown; facial skin livid, extending round the eye from the centre of the forehead and thence to the sides of the lower mandible; legs and feet bronzed brown, bluish above the knee. (*Legge.*)

Length 25 inches, tail 4·5, wing 11·5, tarsus 4, bill from gape 5·5. The female is of about the same size.

The Glossy Ibis is said by Mr. Blyth to occur in Arrakan. Capt. Feilden observed it at Thayetmyo, in Pegu; and I also once saw a flock of these birds at the same place.

It inhabits Europe, Africa, America and all the temperate and tropical parts of Asia down to Australia.

This Ibis is found in large flocks, frequenting tanks, marshes and paddy-fields. It breeds on trees, constructing a nest of sticks and laying three green eggs.

Order X. ANSERES.

Family ANATIDÆ.

Subfamily ANSERINÆ.

Genus NETTAPUS, *Brandt.*

635. NETTAPUS COROMANDELIANUS.

THE COTTON TEAL GOOSE.

Anas coromandeliana, *Gm. Syst. Nat.* i. p. 522. *Nettapus coromandelianus*, *Jerd. B. Ind.* ii. p. 786; *Anders. Ibis*, 1874, p. 222; *Bl. B. Burm.* p. 165; *David et Oust. Ois. Chine*, p. 501; *Hume & Dav. S. F.* vi. p. 486; *Oates, S. F.* vii. p. 52; *Cripps, S. F.* vii. p. 311; *Hume, S. F.* vii. p. 491; *id. S. F.* viii. p. 114; *Legge, Birds Ceylon*, p. 1066; *Bingham, S. F.* ix. p. 198; *Hume & Marsh. Game Birds*, iii. p. 101, pl.; *Oates, S. F.* x. p. 245; *Kelham, Ibis*, 1882, p. 198. *Nettapus coromandelicus* (L.), *Hume, Nests and Eggs*, p. 638. *Nettapus coromandus* (L.), *Hume, S. F.* iii. p. 192.

Description.—*Male in summer.* Forehead, crown and nape hair-brown, the former darkest; remainder of the head, the whole neck and lower plumage pure white; a broad collar round the neck black in front, glossy green behind; the white of the breast produced round the neck and forming another collar below the black one; under tail-coverts dark brown mottled with white; back, scapulars, rump, tertiaries and wing-coverts deep glossy green or purple; secondaries glossy green, broadly tipped with white; primaries dark brown on the basal halves, then white with the tips black; upper tail-coverts white, freckled with brown; tail brown; sides of body vermiculated with brown; under wing-coverts greenish black.

Female at all seasons. Forehead and a supercilium dirty white; crown and nape dark brown; lores and a line through the eyes blackish; remainder of the head, the whole neck and the upper breast dull white mottled with brown, the marks on the breast and hind neck becoming well-defined wavy lines; the lower plumage dull white, streaked and indistinctly barred with brown; the whole upper plumage, wings and tail brown, the secondaries tipped with white and the inner primaries also more narrowly tipped with white; upper tail-coverts white, freckled with brown; under wing-coverts brown, each feather margined with white.

The *male in winter* is very similar to the female, but always retains the conspicuous white patch on the primaries.

The *young* are similar to the female till the first spring.

In the *male* the bill in summer is black; the iris bright red; legs, toes

and webs black, the sides of the tarsus and toes dusky yellow; claws horny brown. In the winter the upper mandible is brownish and the lower yellowish.

In the *female* the bill is brown above, yellowish below; the iris is brown, and the legs and toes greenish yellow.

Length 13 inches, tail 3, wing 6·5, tarsus 1, bill from gape 1·1. The female is a trifle smaller.

The Cotton Teal Goose is very common and generally distributed over the Province, except, perhaps, in Tenasserim, where Mr. Davison did not meet with it south of Tavoy.

It occurs over a considerable portion of India and Ceylon, Southern China, Cochin China, the Malay peninsula, and is even said to occur in Java and the Philippine Islands. It is pretty certain also to be found in the Indo-Burmese countries.

This little Goose is the best-known of all the Burmese game birds, being found, whether singly or in flocks, in all swamps, marshes, inundated paddy-fields, ponds and even roadside ditches. It is very tame, except when associating with Ducks, at which times it partakes of their shy nature. It dives well; and wounded birds generally manage to escape by going under and rising again in dense herbage. Its note is very peculiar, and uttered only when flying. It breeds in the holes of trees; and I found a nest with ten eggs in September, near Kyeikpadein, in a mango tree, about thirty feet from the ground.

Subfamily ANATINÆ.

Genus DENDROCYGNA, *Swains.*

636. DENDROCYGNA JAVANICA.

THE LESSER WHISTLING TEAL.

Anas javanica, *Horsf. Trans. Linn. Soc.* xiii. p. 199. *Mareca awsuree*, *Sykes, P. Z. S.* 1832, p. 168. *Dendrocygna awsuree*, *Jerd. B. Ind.* ii. p. 789. *Dendrocygna arcuata* (*Cuv.*), *apud Hume, Nests and Eggs*, p. 639; *Salvad. Ucc. Born.* p. 362; *Anders. Ibis*, 1874, p. 222; *Bl. B. Burm.* p. 165; *Wardlaw Ramsay, Ibis*, 1877, p. 472; *Oates, S. F.* v. p. 169. *Dendrocygna javanica*, *Hume & Dav. S. F.* vi. p. 486; *Cripps, S. F.* vii. p. 311; *Hume, S. F.* viii. p. 114; *Legge, Birds Ceylon*, p. 106; *Hume & Marsh. Game Birds*, iii. p. 109, pl.; *Bingham, S. F.* ix. p. 198; *Parker, S. F.* ix. p. 486; *Oates, S. F.* x. p. 245; *Kelham, Ibis*, 1882, p. 197.

Description.—*Male and female.* Forehead, crown and nape fulvous-brown; sides of the head, chin, throat and neck pale yellowish brown,

darker on the hind neck ; back and scapulars dark brown, each feather broadly edged with fulvous ; rump and the shorter upper tail-coverts black ; the longer upper tail-coverts chestnut ; tail brown ; lesser and median wing-coverts chestnut ; greater coverts and quills ashy black ; breast yellowish, shading gradually into the light chestnut of the lower plumage ; under tail-coverts light fulvous.

Bill, legs and feet brownish blue, the nail of the bill nearly black ; iris brown ; eyelids bright yellow ; claws bluish horn-colour.

Length 16 inches, tail 2·3, wing 7·5, tarsus 1·7, bill from gape 1·9. The female is of the same size.

The Lesser Whistling Teal is found abundantly over the whole Province, except perhaps in the Thayetmyo and Prome districts, where I procured only the next species.

It is met with throughout nearly the whole of the Indian peninsula and Ceylon, the Indo-Burmese countries, Siam, Cochin China, the Malay peninsula, Sumatra, Java and Borneo.

This very common Teal occurs on all large pieces of water covered with weeds, in marshes and inundated paddy-fields, and is a constant resident. Usually it associates in large flocks ; but in the breeding-season it is more frequently seen in pairs. It habitually perches on trees when not engaged in swimming, and is not often observed walking on the ground. It swims and dives well, and feeds almost entirely on vegetable food. I have frequently found its nest in Pegu in July and August—a mass of dead leaves and grass placed on a low thick cane-brake in paddy-land, and containing six very smooth white eggs. The site for the nest varies much, however ; and it is often placed in tall trees, either on a branch or in a hole in the trunk. At times the nest is on the ground. Those nests I myself found were invariably situated, as above described, on cane-brakes.

637. DENDROCYGNA FULVA.

THE LARGER WHISTLING TEAL.

Anas fulva, *Gm. Syst. Nat.* i. p. 530. *Dendrocygna major*, *Jerd. Madr. Journ.* 1840, p. 218 ; *id. Ill. Ind. Orn.* pl. xxiii. ; *id. B. Ind.* ii. p. 790 ; *Hume, S. F.* iii. p. 193. *Dendrocygna fulva*, *Sclat. & Salv. P. Z. S.* 1876, p. 372 ; *Hume & Dav. S. F.* vi. p. 488 ; *Hume, S. F.* vii. p. 463 ; *id. S. F.* viii. p. 115 ; *Parker, S. F.* ix. p. 487 ; *Hume & Marsh. Game Birds*, iii. p. 119, pl. ; *Oates, S. F.* x. p. 245.

Description—*Male and female.* Forehead, crown and nape chestnut ; remainder of the head and upper neck paler chestnut ; a streak the whole way down the hind neck black ; fore neck and sides of the lower part of

the neck with the feathers spare and pointed; back and scapulars rich brown, each feather very broadly edged with chestnut; rump and upper tail-coverts black; the central portion of the wing-coverts more or less maroon; remainder of the coverts, the quills and tail black; the whole lower plumage chestnut; the breast paler; under tail-coverts yellowish white; sides of the body and under wing-coverts with broad yellowish-white streaks.

The bill and other parts are coloured very similarly to the same parts of *D. javanica*.

Length 20 inches, tail 3, wing 9, tarsus 2.5, bill from gape 2.4. The female is of much the same size.

The Larger Whistling Teal is comparatively a rare bird in Burmah, except in the northern portions of Pegu, where I found it very abundant in the Engmah swamp, twenty-five miles south of Prome. Capt. Wardlaw Ramsay procured it at Tonghoo; and I observed it several times in the paddy-fields near Kyeikpadein in Southern Pegu during the rains. I can find no record of its occurrence in Tenasserim or Arrakan.

It is met with over a considerable portion of India and Ceylon, and it will probably be found in the Indo-Burmese countries. Elsewhere it has a curious distribution; for it is found in Madagascar and over the greater part of South America.

This species, so far as I had an opportunity of observing it, resembles the preceding very closely in habits.

D. arcuata, Cuv., is an allied species, which inhabits Java, the Philippines and Australia.

Genus SARCIDIORNIS, *Éyton*.

638. SARCIDIORNIS MELANONOTA.

THE COMB DUCK.

Anser melanonotus, Penn. in Forst. Ind. Zool. p. 21, pl. 11; Newton, S. F. viii. p. 415. *Sarcidiornis melanonotus*, Jerd. B. Ind. ii. p. 785; Hume, *Nests and Eggs*, p. 636; id. S. F. iii. p. 192; Anders. *Ibis*, 1874, p. 220; Bl. B. *Burm.* p. 165; Wardlaw Ramsay, *Ibis*, 1877, p. 472; Hume & Dav. S. F. vi. p. 486; Hume, S. F. vii. p. 507, viii. p. 114; Hume & Marsh. *Game Birds*, iii. p. 91, pl.; Parker, S. F. ix. p. 486; Legge, *Birds Ceylon*, p. 1063; Oates, S. F. x. p. 245.

Description.—*Male*. Head and neck white, spotted with metallic black, the spots more frequent on the crown and hind neck, and causing those parts to be almost entirely black; base of the neck and the whole lower plumage white; upper back, the whole of the wings, rump and upper tail-

coverts black; the secondaries glossed with bronze, the scapulars with purple, the other parts with green and blue; lower back grey; tail umber-brown.

The *female* is very similar to the male in general appearance, but is much smaller; the head and neck are more spotted with black; the metallic gloss on the upper plumage is much reduced in amount, and the whole rump and upper tail-coverts as well as the lower back are grey; there is no fleshy process on the upper mandible.

Iris dark brown; bill and comb black; legs and feet dark plumbeous.

Length 30 inches, tail 6, wing 15, tarsus 3, bill from gape 2·6. The female is much smaller, the wing being about 11 or 11·5 inches. The fleshy comb on the bill of the male is about 2 inches high in the breeding-season, and very small and inconspicuous at other times.

The Comb Duck is very abundant in suitable localities throughout Pegu. I observed it in the Engmah swamp and also in the large marshes near Payagalay, about thirty miles north of the town of Pegu; and I have met with it in small quantities near Kyeikpadein in paddy-fields. Capt. Wardlaw Ramsay noticed it at Tonghoo. Mr. Davison did not meet with it in any part of Tenasserim; but it will probably be found in that Division; and the same may be said of Arrakan, for Mr. Blyth remarks that it is common in Burmah, showing, I think, that he had received it from various quarters.

It occurs throughout the Indian peninsula and Ceylon, and probably also in the Indo-Burmese countries.

This fine Duck is a constant resident in Burmah, being found singly, in pairs, or in small flocks of twenty or thirty individuals in all the larger swamps, and at times even in paddy-fields. It is a tree-Duck, often perching on trees and making its nest in the holes of trees or on the larger branches.

Genus TADORNA, *Fleming*.

639. TADORNA CASARCA.

THE BRAHMINY DUCK.

Anas casarca, Linn. *Syst. Nat.* iii. App. p. 224. *Anas rutila*, Pall. *Nov. Comm. Petrop.* xiv. pt. i. p. 579. *Casarca rutila*, *Jerd. B. Ind.* ii. p. 791; *Hume & Henders. Lah. to Yark.* p. 296; *Hume, Nests and Eggs*, p. 641; *id. S. F.* iii. p. 193; *Bl. B. Burm.* p. 165; *Scully, S. F.* iv. p. 198; *David et Oust. Ois. Chine*, p. 497; *Hume & Dav. S. F.* vi. p. 489; *Hume, S. F.* viii. p. 115; *Scully, S. F.* viii. p. 362; *Hume & Marsh. Game Birds*, iii. p. 123, pl.; *Oates, S. F.* x. p. 245. *Tadorna casarca*, *Dresser, Birds Eur.* vi. p. 461, pl.; *Anders. Yunnan Exped.* p. 699; *Legge, Birds Ceylon*, p. 1070.

Description.—*Male in summer.* The whole head yellowish or ochraceous white, tinged with rufous in places; the neck, the whole lower plumage, back and scapulars chestnut, deepest on the breast, vent and under tail-coverts; a black ring round the neck; smaller and median wing-coverts white; greater coverts and secondaries glossy green; tertiaries chestnut on the outer webs, whitish on the inner; primaries, tail and upper tail-coverts glossy black; rump fulvous, minutely cross-barred with black.

The *male in winter* has no black collar round the neck.

The *female* never has the black collar at any time; the front of the head is whitish; but she does not otherwise differ from the male.

Bill black; iris dark brown; legs and feet very dark brown; claws black.

Length 26 inches, tail 6, wing 15·3, tarsus 2·5, bill from gape 2·3. The female is considerably smaller.

The Brahminy Duck is a visitor to the Province from October to March. It is very abundant in the large rivers of Pegu; but Mr. Davison did not observe it in Tenasserim. It is probably common in Arrakan, whence Mr. Blyth received it.

It occurs, according to season, over a great part of Southern and Central Asia, Northern Africa and Southern Europe. It has not yet been recorded from Siam, Cochin China or the Malay peninsula.

This handsome Duck is found almost entirely on large rivers such as the Irrawaddy, the Sittang and the Pegu; and banks of nice clean sand seem almost necessary to its existence. It spends a good deal of its time on the shore, especially during the heat of the day, and it is very shy and difficult to approach. It breeds at high elevations in the Himalayas and Central Asia, making its nest on cliffs or in holes in the ground.

Genus MARECA, *Steph.*

640. MARECA PENELOPE.

THE WIGEON.

Anas penelope, *Linn. Syst. Nat.* i. p. 202; *Bl. B. Burm.* p. 166. *Mareca penelope*, *Jerd. B. Ind.* ii. p. 804; *Dresser, Birds Eur.* vi. p. 541, pl., *David et Oust. Ois. Chine*, p. 499; *Hume & Marsh. Game Birds*, iii. p. 198, pl.; *Hume, S. F.* viii. p. 115, x. p. 245 (note).

Description.—*Male.* Forehead and crown creamy yellow; rest of the head and upper part of the neck chestnut-red; the cheeks speckled with black; back minutely barred with transverse wavy lines of black and white; scapulars black edged with white; tail blackish grey; wing-coverts pure white; the greater coverts with velvet-black tips, some of the lesser ones, near the body, pale greyish; quills cinereous brown; speculum of three bars, the middle one glossy green, the upper and under ones black; chin and throat black; lower part of neck and breast vinaceous red; abdomen white, the flanks with black and white wavy lines; under tail-coverts black, glossed green.

Bull plumbeous blue, black at the tip; irides red-brown; legs dusky leaden.

The *female* has the head and neck fulvous-brown, speckled with dusky; the back and scapulars dusky brown with reddish edges; wing-coverts brown, edged with whitish; the speculum without the dark green gloss; the breast and belly much as in the male; the flanks rufous-brown with ashy tips; bill and legs more dusky than in the male.

In some specimens the forehead alone is yellowish, that tint not extending over the top of the head.

In summer the head and neck of the male become spotted with black; the back and scapulars are mottled and barred with brown and dusky; the breast and sides are reddish brown with darker bars and lines; the under tail-coverts white with brown bars. (*Jerdon.*)

Length 19 inches, tail 4·3, wing 10, tarsus 1·5, bill from gape 1·8. The female is of much the same size.

I have reproduced Dr. Jerdon's description of this Duck; for it seems to me very full and satisfactory.

The Wigeon is said by Mr. Blyth to have occurred in Arrakan. Col. M'Master, who resided in Pegu for some years, remarks that it is commoner in Burmah than in India. I have never myself met with it; nor do I know of any sportsman who has shot it in Burmah in recent years.

It has a considerable range, being found according to season in most parts of Asia and Europe, Northern Africa and on the eastern coast of North America. It is spread over the Indian peninsula and China in winter, but has not yet been found further south, except as a straggler in Borneo.

The Wigeon is a winter visitor, and is no doubt rare in Burmah compared with other Ducks.

The female may be recognized at a glance from the females of other ducks by the colour of the bill, which is small and tipped with black.

Genus DAFILA, *Swains.*

641. DAFILA ACUTA.

THE PINTAIL.

Anas acuta, Linn. *Syst. Nat.* i. p. 202; *Bl. B. Burm.* p. 166; *Legge, Birds Ceylon*, p. 1076. *Dafila acuta*, *Jerd. B. Ind.* ii. p. 803; *Dresser, Birds Eur.* vi. p. 531, pl.; *Hume, S. F.* iii. p. 193; *Scully, S. F.* iv. p. 200; *David et Oust. Ois. Chine*, p. 498; *Hume & Dav. S. F.* vi. p. 489; *Hume, S. F.* viii. p. 115; *Scully, S. F.* viii. p. 363; *Hume & Marsh. Game Birds*, iii. p. 189, pl.; *Oates, S. F.* x. p. 245.

Description.—*Male.* Forehead and crown rich umber-brown; remainder of head and upper neck plain brown; lower neck, breast and abdomen pure white, the white of the neck continued upwards in two streaks to the nape; the hind neck between these streaks blackish; lower hind neck, back, rump and upper tail-coverts marked with narrow undulating lines of black and white, the upper tail-coverts with the outer webs chiefly black; tail ashy brown, the lengthened central feathers black; scapulars black edged with grey; wing-coverts and primaries ashy brown, the greater series of coverts tipped with clear buff; secondaries glossy green, with a subterminal band of black and broad white tips; tertiaries ashy brown, with the central portion of each feather blackish; sides of the body barred with black and white like the back; lower abdomen and vent white stippled with brown; under tail-coverts black.

The *female* has the whole head and neck fulvous-white streaked with brown, the crown and hind neck darker than the other parts; the upper plumage and wing-coverts dark brown edged with rufous, and the feathers of the back also with double bar-like spots on the centres; greater wing-coverts tipped with white as those of the male are with buff; secondaries

brown, not green, broadly tipped with white, and subterminally blackish ; lower plumage greyish white marked and spotted with brown ; tail brown, with a few oblique whitish bars and the central pair of feathers produced nearly an inch beyond the next pair.

For a short period after the breeding-season the males assume a plumage which does not differ very materially from that of the female. They are never seen in Burmah in this state.

The bill is plumbeous above, the lower mandible, the culmen and a portion of the margins being black ; iris dark brown ; legs and feet plumbeous brown.

Length up to 28 inches, according to the state of the tail, which is often 9 inches in length ; wing 11, tarsus 1·7, bill from gape 2·2. The female, owing to the central tail-feathers not being produced to any great extent, is much shorter, the length being about 22 inches, tail 5, wing 10, tarsus 1·6, bill from gape 2·2.

The male of this species cannot be confounded with that of any other ; the female may be recognized by her sharply pointed tail, the central pair of feathers of which are generally an inch longer than the next.

The Pintail is generally distributed over Pegu in winter. Mr. Blyth records it from Arrakan ; but Mr. Davison did not meet with it in Tenasserim, except on one occasion near Moulmein.

It occurs over nearly the whole of the northern hemisphere from the neighbourhood of the equator up to and beyond the Arctic circle, moving about according to season.

This Duck, when found, is usually in large flocks. I have observed and shot a considerable number in the Engmah swamp at various times ; and I have also seen it in some of the larger swamps in the plains of Southern Pegu. It may be considered the commonest of the larger migratory Ducks. It is shy and wary ; and its flight is very rapid. It breeds in high latitudes, making a nest on the ground in marshes, and laying a large number of very pale greenish eggs.

Genus ANAS, *Linn.*

642. ANAS LEUCOPTERA.

THE WHITE-WINGED WOOD-DUCK.

Anas scutulata, *S. Müll. Schleg. Mus., P.-B. Anseres*, p. 64; *Wolf, Zool. Sketches*, ii. pl. xlix. *Sarcidiornis leucopterus*, *Bl. J. A. S. B.* xviii. p. 820. *Casarca leucoptera*, *Jard. Contr. Orn.* p. 141, pl. 64; *Gould, P. Z. S.* 1859, p. 150; *Jerd. B. Ind.* ii. p. 793; *Bl. B. Burm.* p. 165; *Hume & Dav. S. F.* vi. p. 489; *Hume, S. F.* viii. p. 170. *Casarca scutulata*, *Bl. Ibis*, 1867, p. 176; *Hume, S. F.* viii. p. 115. *Anas scutulata*, *Hume, S. F.* viii. p. 158; *Hume & Marsh. Game Birds*, iii. pp. 147, 172, pl.

Description.—Head and neck mottled black and white, perhaps pure white in the adult; hind neck glossy black; rest of the upper plumage, including the tail, blackish brown; shoulders and wing-coverts pure white; greater coverts black; primaries dusky; secondaries slaty; tertials lengthened and wide, dusky, the outermost with a white border, showing as a white line on the wing; neck and breast glossy black; rest of the lower plumage dusky castaneous, dark brown on the flanks and under tail-coverts.

Bill and legs black. Length 28 inches, wing 15, tail 6, bill at front 3, tarsus $2\frac{1}{2}$, mid toe $3\frac{1}{4}$. (*Jerdon*.)

Having never seen a specimen of this Duck, I quote Dr. Jerdon's description. Mr. Hume assures us that it properly belongs to this genus, and not to *Tadorna* or *Casarca*, where it has usually been placed.

This, the rarest of all the Burmese Ducks, has been procured in Tenasserim, at Tavoy by Col. Briggs, and at Mergui by the late Major Berdmore. I can find no other record of its occurrence in Burmah; but Blyth states that it inhabits all the river-valleys, an assertion which I am pretty certain has no good foundation.

It occurs in Assam and in the hill-tracts of Eastern Bengal, in the northern part of the Malay peninsula, and in Java; for it now seems to be generally admitted that the Javan bird is identical with Mr. Blyth's species.

Little is known of this Duck except that it is very shy and inhabits thick forests, feeding in pools of water and probably also in rivers.

BIRDS OF BRITISH BURMAH.

643. ANAS PÆCILORHYNCHA.

THE SPOTTED-BILLED DUCK.

Anas pæcilorhyncha, *Forst. Ind. Zool.* p. 23, pl. 13; *Jerd. B. Ind.* ii. p. 799; *Hume, Nests and Eggs*, p. 643; *Bl. B. Burm.* p. 165; *Butler, S. F.* iv. p. 29; *Anders. Yunnan Exped.* p. 699; *Hume & Dav. S. F.* vi. p. 489; *Hume, S. F.* vii. p. 507, viii. p. 115; *Hume & Marsh. Game Birds*, iii, p. 165, pl.; *Legge, Birds Ceylon*, p. 1073.

Description.—*Male and female.* The whole head and neck whity brown minutely streaked with dark brown, the streaks most numerous on the crown, hind neck, and on a band reaching from the bill to the gape; the whole lower plumage pale fulvous-white spotted throughout with brown; the under tail-coverts uniform glossy brown; back, scapulars, lesser and median wing-coverts brown, each feather edged with pale fulvous; greater coverts subterminally white and broadly black at the tips; secondaries black tipped with white, the later ones with a patch of glossy green on the outer webs forming a speculum; tertiaries chiefly white on the outer webs, the white forming a band in continuation of the white on the greater coverts; rump and upper tail-coverts nearly black; tail dark brown narrowly margined with pale ashy brown.

Bill black, the base of the upper mandible at the forehead red, the tip of both mandibles yellow, greater in extent on the upper than on the lower; legs and feet red; claws black; iris brown. The young bird wants the red at the base of the upper mandible.

Length 24 inches, tail 5, wing 11, tarsus 1·9, bill from gape 2·6. The female is smaller, the wing being about 10 inches.

The Spotted-billed Duck is said by Mr. Blyth to occur in Arrakan and Tenasserim; but I have never met with it in Pegu, nor did Mr. Davison shoot it in Tenasserim. We must therefore conclude that it is very rare.

It inhabits the whole Indian peninsula and Ceylon, where it is a resident species, and it occurs in Independent Burmah. In China it is replaced by *A. zonorhyncha*, which has no red spot at the base of the bill, and differs also in other slight respects.

This large Duck appears to be found in pairs or small flocks in tanks and swamps; and in India it is considered one of the best for the table. The nest is usually placed on the ground, occasionally on a low branch of a tree; and the eggs are generally eight in number and white.

Genus CHAULELASMUS, *G. R. Gray.*

644. CHAULELASMUS STREPERUS.

THE GADWALL.

Anas strepera, *Linn. Syst. Nat.* i. p. 200; *Bl. B. Burm.* p. 166. *Chaulelasmus streperus*, *Jerd. B. Ind.* ii. p. 802; *Dresser, Birds Eur.* vi. p. 487, pl.; *David et Oust. Ois. Chine*, p. 499; *Hume, S. F.* viii. p. 115; *Scully, S. F.* viii. p. 362; *Hume & Marsh. Game Birds*, iii. p. 181, pl.

Description.—*Male.* Head and neck greyish speckled with brown, the crown and hind neck more uniformly brown; back and upper scapulars dark brown closely vermiculated with fulvous-white; longer scapulars brown broadly edged with fulvous; rump and upper tail-coverts black; tail pale grey edged with white; lesser wing-coverts light brown stippled with grey; median coverts chestnut; greater coverts black, the exterior ones chestnut; primaries and tertiaries ashy; the earlier secondaries ashy, the next broadly edged with black on the outer webs, the later ones pure white on the outer web; lower neck and breast dark brown, each feather with a semicircular edging of white; abdomen and vent white speckled with brown; under tail-coverts black; sides of the body narrowly barred with brown and white.

The *female* has the whole upper plumage, breast, sides of the body and under tail-coverts dark brown, each feather broadly edged with fulvous; the head and neck greyish streaked with brown, the crown and hind neck more uniformly brown; the wing wants the chestnut of the male, but there are frequently traces of chestnut on a few of the feathers; the middle greater coverts are black, but not such a deep black as in the male; and the middle secondaries are white, forming a patch, but not such a large one as in the male.

Iris brown; legs and feet orange; bill in the male blackish, tinged with reddish on the lower mandible, in the female brownish orange becoming black on the tip, nail and culmen.

Length 20 inches, tail 4, wing 11, tarsus 1·4, bill from gape 2. The female is smaller, the wing being about 10 inches in length or even less.

The Gadwall is said by Mr. Blyth to occur in Arrakan; and as it is a Duck of wide distribution, it is not unlikely to be common in that Division. I have never shot it in Pegu; nor has it been seen in Tenasserim.

It inhabits the whole northern hemisphere from the tropic to the Arctic circle, wandering inside this latter in places, and also approaching the equator in small numbers.

Wherever it may be found in Burmah it will be only as a winter visitor. In India it arrives in October and leaves at the end of March. Like most

other large Ducks, it is met with in flocks; and it frequents alike rivers, lakes, marshes, and ponds. The nest is placed on the ground in clumps of grass and reeds; and the eggs, which are sometimes as many as thirteen in number, are pale yellowish white.

Genus RHODONESSA, *Reich.*

645. RHODONESSA CARYOPHYLLACEA.

THE PINK-HEADED DUCK.

Anas caryophyllacea, *Lath. Ind. Orn.* ii. p. 866; *Jerd. B. Ind.* ii. p. 800; *Hume, Nests and Eggs*, p. 644; *Bl. B. Burm.* p. 165; *Hume, S. F.* vii. p. 492, viii. p. 501. *Rhodonessa caryophyllacea*, *Hume, S. F.* viii. p. 115; *Hume & Marsh. Game Birds*, iii. p. 173, pl.

Description.—*Male.* The whole head, the sides and back of the neck rosy pink; entire front of the neck, the whole lower plumage, back, rump, upper tail-coverts, tail, upper wing-coverts, scapulars and tertiaries dark glossy brown; secondaries salmon-colour, forming a speculum; primaries brownish salmon-colour, paler on the inner webs; edge of the wing broadly whitish; under wing-coverts pinkish white.

The *female* has the pink of the head duller and the back of the neck browner.

Young birds have the head and neck merely tinged with pink and the whole plumage of a dull brown. The secondaries at all ages are salmon-colour.

Bill reddish white, rosy at the base and faintly bluish at the tip; irides fine orange-red; legs and feet blackish with a tinge of red. (*Jerdon.*)

Length 23 inches, tail 4·5, wing 11, tarsus 2, bill at front 2·3. The female appears, judging from the specimens I have examined, to be of the same size as the male.

The Pink-headed Duck is a rare species, which, according to Mr. Blyth, occurs in Arrakan. I have never met with it in Pegu; nor does it appear to be found in Tenasserim.

It inhabits portions of the Indian peninsula, Assam and the eastern portions of Bengal; and Mr. Blyth gives Bhamo in Independent Burmah as a locality where this species has been procured.

This beautiful Duck appears to be resident in India; but it is nowhere common, and it is almost always found in weedy tanks and swamps. The nest is placed on the ground in coarse grass; and the eggs are five to ten in number. The breeding-season is June and July.

Genus QUERQUEDULA, *Steph.*

646. QUERQUEDULA CRECCA.

THE COMMON TEAL.

Anas crecca, *Linn. Syst. Nat.* i. p. 204; *Bl. B. Burm.* p. 166; *Legge, Birds Ceylon*, p. 1083. *Querquedula crecca*, *Jerd. B. Ind.* ii. p. 806; *Dresser, Birds Eur.* vi. p. 507, pl.; *Hume, S. F.* iii. p. 193; *David et Oust. Ois. Chine*, p. 502; *Anders. Yunnan Exped.* p. 700; *Hume & Dav. S. F.* vi. p. 489; *Hume, S. F.* viii. p. 115; *Scully, S. F.* viii. p. 363; *Hume & Marsh. Game Birds*, iii. p. 205; *Oates, S. F.* x. p. 245.

Description.—*Male.* Forehead, crown, a band continued down the hind neck, the space between the bill and the eye, cheeks, sides and front of neck chestnut; chin black; a broad band from the eye running down the sides of the nape and upper neck glossy green, bounded by a narrow white line below; a patch of blue at the back of the neck; upper plumage narrowly cross-barred with black and white; upper tail-coverts blackish, each feather edged with fulvous; some of the outer scapulars creamy white, diagonally edged with black; wing-coverts and quills greyish brown, the tips of the outer median coverts creamy white forming a large patch; speculum brilliant green in the middle, black on both sides; fore neck below the chestnut barred with black and white like the back; breast creamy white spotted with black, most of the spots partially concealed; abdomen white; sides of the body beautifully barred with black and white; under tail-coverts black in the centre, buff at the sides.

The *female* is a dull bird, the whole upper plumage and breast being brown, each feather margined with fulvous or yellowish white; she retains the speculum of the male in a reduced form, and may always be recognized by it; the green, black, and white forming the speculum are less in extent but as deeply coloured as in the male.

Iris brown; bill dark brown; legs and feet greyish brown; claws dark horn-colour. In the young the posterior half of the margins of the upper mandible is orange spotted with black, and the lower mandible is dusky orange-grey.

Length 14 inches, tail 3, wing 7·5, tarsus 1·2, bill from gape 1·7. The female is a trifle smaller than the male.

The Common Teal is a tolerably numerous winter visitor to Arrakan and Pegu, and in some parts of the latter is very abundant. Mr. Davison did not meet with it in Tenasserim, except in the plains between the Sittang and the Salween rivers.

It occurs, according to season, in nearly every part of Asia, Europe, North Africa, and on the eastern shores of North America. The most easterly

and southerly locality where I can find its occurrence recorded is Cochin China, where Dr. Tiraud states that it is very common in winter.

This Teal is found in every part of the country where there is water, and in some large swamps, such as those at Engmah and Payagalay, large flocks are frequently seen. In Europe it breeds at the commencement of summer, making its nest on the ground in grass, and laying ten to fifteen pale yellowish eggs.

647. QUERQUEDULA CIRCIA.

THE GARGANEY TEAL.

Anas circia, *Linn. Syst. Nat.* i. p. 204; *Bl. B. Burm.* p. 166; *Legge, Birds Ceylon*, p. 1080. *Querquedula circia*, *Jerd. B. Ind.* ii. p. 807; *Dresser, Birds Eur.* vi. p. 513, pl.; *Hume, Nests and Eggs*, p. 644; *id. S. F.* iii. p. 193; *Scully, S. F.* iv. p. 201; *David et Oust. Ois. Chine*, p. 502; *Hume & Dav. S. F.* vi. p. 489; *Cripps, S. F.* vii. p. 312; *Hume, S. F.* viii. p. 115; *Scully, S. F.* viii. p. 363; *Hume & Marsh. Game Birds*, iii. p. 215, pl.; *Bingham, S. F.* ix. p. 198; *Oates, S. F.* x. p. 245.

Description.—*Male.* Crown and a broad band over the nape down the upper part of the hind neck umber-brown; a broad streak from above the eye white, reaching as far as the umber-brown band; forehead, cheeks, sides of the head and the upper part of the neck chestnut-brown streaked with white; chin black; the lower neck and the whole breast fulvous, each feather with a crescentic black bar; abdomen white; sides of the body white barred with black; under tail-coverts yellowish spotted with black; back glossy brown, the feathers edged with ashy; scapulars greenish black, long and sharp-pointed, with long narrow white streaks down the centres; upper tail-coverts fulvous blotched with black; tail brown, the lateral feathers edged with fulvous; wing-coverts bluish ash, the greater coverts with a broad tipping of white; primaries dark brown; secondaries glossy green tipped with white, the green forming a conspicuous wing-patch; tertiaries brown, more or less margined with yellowish white.

The *female* has the forehead, crown, hind neck and upper plumage brown, each feather edged paler; the sides of the head and neck white streaked with brown; chin and throat pure white; the wings very similar to those of the male, but the wing-patch formed by the secondaries is brown barely tinged with green; the breast and the sides of the body are brown, each feather broadly edged with fulvous; abdomen white; under tail-coverts fulvous spotted with black.

Bill blackish brown, paler on the lower mandible; legs and feet plumbeous to greenish; iris brown.

Length 16 inches, tail 3·5, wing 8, tarsus 1·2, bill from gape 1·8. The female is smaller, the wing not often exceeding 7 inches in length.

The Garganey Teal is the commonest of the Duck tribe in Burmah. According to Mr. Blyth it occurs in Arrakan; and I have found it in every portion of Pegu that I have visited. In Tenasserim it has been observed only in the plains between the Sittang and the Salween rivers, near Moulmein, and at Kaukarit; but it will probably be found more extensively distributed in this Division.

It extends over a considerable portion of Asia, Europe and North Africa. To the south-east it is found in Southern China and in Cochin China, and it is said to have been procured in some of the Malay islands.

This Teal visits Burmah during the winter season, and it arrives very early and leaves late. Col. Tickell procured a young bird near Moulmein, and he was led to think that it bred in Tenasserim; but his conjecture has not been confirmed by the finding of a nest by subsequent observers. In some of the large swamps of Pegu it occurs in immense flocks, some of which must number two or three thousand individuals. It is also often met with in small numbers in tanks and roadside drains. If this Teal should be found breeding in Burmah, it will probably be in June and July. The nest, in Europe, is placed on the ground in marshy localities; and the eggs, which are sometimes thirteen in number, are very pale yellowish white.

Subfamily FULIGULINÆ.

Genus FULIGULA, *Steph.*

648. FULIGULA NYROCA.

THE WHITE-EYED POCHARD.

Anas nyroca, *Güldenst. Nov. Comm. Petrop.* xiv. pt. 1, p. 403. **Aythya nyroca**, *Jerd. B. Ind.* ii. p. 813; *Hume, Nests and Eggs*, p. 645; *Scully, S. F.* iv. p. 202. **Fuligula nyroca**, *Bl. B. Burm.* p. 166; *Hume, S. F.* viii. p. 115; *Hume & Marsh. Game Birds*, iii. p. 263, pl. **Fulix nyroca**, *David et Oust. Ois. Chine*, p. 507. **Nyroca ferruginea** (*Gm.*), *Dresser, Birds Eur.* vi. p. 531, pl.

Description.—*Male.* The head and neck rich chestnut, the lower part of the neck all round dull rufous-brown; the whole breast and upper abdomen chestnut; middle of the abdomen white; lower part of the abdomen, vent and base of lower tail-coverts reddish ashy brown; terminal portion of lower tail-coverts white; sides of the body dull chestnut; back and scapulars brownish black, very minutely powdered with reddish brown;

rump and upper tail-coverts dull black; tail brown; wing-coverts and quills brown tinged with green; the first primary with a good deal of white on the inner web, the others progressively with more, till the fifth becomes nearly all white with a black tip, after which the white again decreases in extent; secondaries white, with a broad black tip, the white forming a conspicuous wing-spot; tertiaries glossed with green.

The *female* differs from the male in having the head and neck more or less brown, the feathers edged with reddish; and the upper plumage is brown, instead of brownish black or dull black; the other parts of the plumage are the same as in the male.

Bill plumbeous; iris white; legs and toes plumbeous; claws blackish.

Length 16 inches, tail 3, wing 7·5, tarsus 1·2, bill from gape 2. The female is of about the same size.

The White-eyed Pochard occurs, according to Mr. Blyth, in Arrakan. There is no record of its occurrence elsewhere in the Province.

It occurs throughout the southern half of Asia, the greater part of Europe and Northern Africa. Its south-eastern limit, so far as is at present known, is Burmah and China.

This little Duck, although probably rare in Arrakan, is very common in many parts of India as a winter visitor, arriving in October. It frequents weedy swamps and ponds. It breeds immediately north of India, making a nest of grass in reeds on the edges of lakes, and laying some ten very pale buff eggs.

Order XI. COLUMBÆ.

Subfamily COLUMBINÆ.

Genus COLUMBA, *Linn.*

649. COLUMBA INTERMEDIA.

THE INDIAN BLUE ROCK-PIGEON.

Columba intermedia, *Strickl. Ann. Nat. Hist.* ser. 1, xiii. p. 39; *Jerd. B. Ind.* ii. p. 469; *Hume, Nests and Eggs*, p. 499; *David et Oust. Ois. Chine*, p. 384; *Hume & Dav. S. F.* vi. p. 419; *Hume, S. F.* viii. p. 109; *Scully, S. F.* viii. p. 339; *Legge, Birds Ceylon*, p. 698. *Columba livia*, *apud Bl. B. Burm.* p. 145.

Description.—*Male and female.* General colour of the plumage slaty grey, very dark all round the neck, which is glossed with green and lilac

and paler on the back and wings; two bars of black across the wings, one over the greater coverts and one over the secondaries. Tail ashy grey, with a broad black band near the tips; the basal half of the outer web of the outermost feathers almost pure white.

Bill blackish, with a white mealiness at the base above; irides dull orange; legs dull reddish pink. (*Jerdon.*)

Length 13 inches, tail 5·5, wing 9, tarsus 1·2, bill from gape 1·1. The female is of about the same size.

The Indian Blue Rock-Pigeon differs from its European ally, *C. livia*, in having the rump of the same colour as the back, instead of white.

Mr. Blyth introduces this species into his list of Burmese birds, and remarks with respect to the Province in general, "common, as throughout India." It may, of course, and probably does, occur in Arrakan; but certainly in Pegu, so far from being common, it seems to be altogether absent, for I have never even seen a specimen. The same may be said of Tenasserim and Karennee, where neither Mr. Davison nor Capt. Wardlaw Ramsay observed it.

It occurs over the whole peninsula of India and Ceylon, extending westwards to Afghanistan and eastwards to China. Dr. Tiraud records it from Cochin China; but I judge from his remarks that he considers the birds he saw merely domestic Pigeons turned wild.

This Pigeon frequents cliffs, caverns, old walls, ruined buildings and pagodas, and feeds on the ground in large flocks on grain and seeds. In India it breeds from December to April, and sometimes later, laying two white eggs.

Subfamily PALUMBINÆ.

Genus ALSOCOMUS, *Tick.*

650. ALSOCOMUS PUNICEUS.

THE PURPLE WOOD-PIGEON.

Alsocomus puniceus, *Tick.*, *Bl. J. A. S. B.* xi. p. 462; *Jerd. B. Ind.* ii. p. 462; *Bl. B. Burm.* p. 145; *Wardlaw Ramsay, Ibis*, 1877, p. 147; *Hume & Dav. S. F.* vi. p. 418; *Legge, Birds Ceylon*, p. 698; *Hume, S. F.* viii. p. 109; *Oates, S. F.* viii. p. 167; *Bingham, S. F.* viii. p. 196; *Oates, S. F.* x. p. 235.

Description.—*Male.* Forehead, crown, nape and lores greyish white; primaries and secondaries blackish, more or less edged with ashy; rump and upper tail-coverts dark ashy; tail black; under tail-coverts dark ashy

brown; with these exceptions the whole plumage is vinaceous ruddy, approaching to chestnut on the back and wings, and most of the plumage overlaid with a metallic gloss, especially strong on the neck.

The *female* is of a duller colour, but does not otherwise differ.

Legs and feet pale purplish or lake-pink; horny portion of bill bluish white; rest of bill and gape lake-pink; irides deep orange or pale yellow; eyelids bright red; orbital skin purplish pink. (*Davison.*)

Length 15 inches, wing 8·5, tail 6, tarsus 1, bill from gape 1·1. The female is of about the same size.

Mr. Blyth records this Wood-Pigeon from Arrakan; and Dr. Jerdon gives it from Ramree. I found it sparingly distributed over many parts of Pegu, more abundant perhaps near Kyeikpadein than elsewhere; and Capt. Wardlaw Ramsay procured it at Tonghoo. Mr. Davison observed it in Tenasserim nearly down to Mergui, and Capt. Bingham in the Thoungyeen valley.

It occurs in some parts of India and in Ceylon; and it will probably be found in the Indo-Burmese countries. Mr. Hume notes it from Tonka in the Malay peninsula; and this appears to be the southernmost point from which it has been recorded.

This fine Pigeon is met with in well-wooded parts of the country, and it feeds on fruits. I found the nest at Kyeikpadein in July, a small structure composed of fine twigs, and placed on a branch of a bamboo bush at no great height from the ground. This Pigeon apparently lays but one egg, which, like those of all Pigeons and Doves, is glossy white.

Subfamily TURTURINÆ.

Genus TURTUR, *Selby*.

651. TURTUR TIGRINUS.

THE MALAY SPOTTED DOVE.

Columba tigrina, *Temm. & Knip, Fig.* i. p. 94, pl. xliii. *Turtur tigrina*, *Hume, Nests and Eggs*, p. 506; *id. S. F.* i. p. 461, iii. p. 164; *Bl. B. Burm.* p. 145; *Armstrong, S. F.* iv. p. 337; *Oates, S. F.* v. p. 164; *Anders. Yunnan Exped.* p. 665; *Hume & Dav. S. F.* vi. p. 422; *Hume, S. F.* viii. p. 110; *Bingham, S. F.* ix. p. 194; *Oates, S. F.* x. p. 235. *Spilopelia tigrina*, *Salvad. Ucc. Born.* p. 296.

Description.—*Male and female.* Forehead and cheeks grey; a dark spot in front of the eye; crown, nape and lower plumage vinaceous, paling on the chin, vent and under tail-coverts; hind neck and sides of the neck

black, each feather with two squarish white spots at the tip; back, scapulars, wing-coverts and rump brown; each feather blackish along the shaft and tipped on both webs with lighter brown; the outermost wing-coverts pure grey on the outer webs; quill dark brown, some of the tertiaries with blackish shaft-streaks and tipped paler; tail brown, the outer feathers broadly tipped with white, the white reduced in extent interiorly and disappearing on the fifth pair of feathers, which are dark brown; central pair conspicuously paler brown.

The *young* have no white spots on the neck at first.

Bill bluish black; eyelids and skin of face plumbeous; irides reddish; legs deep red; claws dark horn.

Length 12·4 inches, tail 6, wing 5·5, tarsus 1, bill from gape ·9. The female is of about the same size.

T. suratensis from India differs in having the shaft-streaks on the upper plumage well defined and terminating in a dark spot on the tips of the feathers; the terminal spots on both webs of these parts are also very large and of a vinaceous pink colour. *T. chinensis*, from China, differs in being larger and in entirely wanting the dark shaft-streaks on the upper plumage.

The Malay Spotted Dove is extremely abundant over the whole Province.

It extends northwards through the Indo-Burmese countries to Cachar, and eastwards to Cochin China. It ranges down the Malay peninsula to Sumatra, Java, Borneo and the more distant islands as far as Celebes and Amboina.

This familiar Dove is met with in all the open and cultivated parts of the Province, and also in small numbers in forests and dense jungle; it does not, however, ascend the higher hills. It feeds entirely on the ground, on seeds and grain.

It breeds almost all the year round, but chiefly from August to March, making a flimsy nest of twigs in low trees, bushes and bamboos, and laying two eggs.

652. TURTUR MEENA.

THE RUFOUS TURTLE DOVE.

Columba meena, Sykes, P. Z. S. 1832, p. 149. *Turtur meena*, Jerd. B. Ind. ii. p. 476; Hume, *Nests and Eggs*, p. 501; *id.* S. F. iii. p. 163; Bl. B. Burm. p. 146; Anders. *Yunnan Exped.* p. 665; Hume & Dav. S. F. vi. p. 420; Hume, S. F. viii. p. 110; Scully, S. F. viii. p. 340; Oates, S. F. x. p. 235.

Description.—*Male and female.* Forehead, crown, nape, hind neck and back ashy brown, suffused with vinous, and the feathers indistinctly edged with rufous; a patch on either side the neck black, each feather tipped with grey; lower back and rump dark ashy, edged paler; upper tail-coverts brown, edged with pale rufous; scapulars, tertiaries, lesser and median coverts brown, broadly edged with rufous; greater coverts and secondaries edged with ashy, the innermost ones edged with rufous; primaries dark brown edged with rufous; lower plumage vinous-red tinged with purplish in some, paler on the chin and throat; sides of the body, under wing-coverts, vent and under tail-coverts ashy; central tail-feathers ashy brown, the others ashy brown tipped with grey.

Bill brown, with a tinge of vinous on the basal half; iris orange-red; eyelids pale blue; the edges of the eyelids red; legs vinous-red; claws black.

Length 13 inches, tail 5, wing 7, tarsus 1.1, bill from gape 1. The female is of the same size.

The present species differs from its ally, *T. rupicola* apud Jerdon, principally in being smaller, and in having the under tail-coverts dark ashy, instead of white tinged with ashy, and in having the plumage browner and less richly coloured. I have not been able to arrive at any conclusion of my own regarding the validity of these two species, the distinctness of which is questioned by Mr. Dresser and Dr. Scully, and upheld by Mr. Hume and others. It is convenient at present to regard *T. meena* as distinct from *T. rupicola*, more especially as all the Doves of this type found in Burmah agree in having the under tail-coverts ashy, concolorous with the under wing-coverts, vent and sides of the body, and not whitish as in *T. rupicola*.

The Rufous Turtle Dove is spread over the whole Province, and is a permanent resident, but is nowhere very common. Capt. Wardlaw Ramsay observed it in Karennee at 4000 feet elevation.

It occurs in the Indo-Burmese countries, and in the hill-tracts of Eastern Bengal, extending along the foot of the Himalayas to Nipal and thence across Central India to Bombay. According to Dr. Tiraud it is met with in Cochin China; but it is not found in the Malay peninsula so far as is at present known.

This Dove frequents much the same localities as the last, but is by no means so common. It is, however, observed on the higher hills, where *T. tigrinus* is absent or very rarely seen. It has the usual habits of the Turtle Doves, feeding on the ground in pairs or singly, and flying into trees when disturbed.

653. TURTUR RISORIOUS.

THE INDIAN RING-DOVE.

Columba risoria, Linn. *Syst. Nat.* i. p. 285. *Turtur risorius*, Jerd. *B. Ind.* ii. p. 481; Hume, *Nests and Eggs*, p. 506; *id.* *S. F.* iii. p. 165; Wald. in *Bl. B. Burm.* p. 146; Dresser, *Birds Eur.* vii. p. 51, pl.; David et Oust. *Ois. Chine*, p. 387; Anders. *Yunnan Exped.* p. 666; Cripps, *S. F.* vii. p. 297; Legge, *Birds Ceylon*, p. 702; Hume, *S. F.* viii. p. 110; Oates, *S. F.* x. p. 235.

Description.—*Male and female.* The whole head, neck and lower plumage pale vinaceous; a black collar on the hind neck, with a little white above and below it; upper plumage, tertiaries and wing-coverts light brown; edge of the wing ashy; secondaries ashy brown; primaries black narrowly edged with whitish; lower abdomen, vent and under tail-coverts dark ashy; sides of body and under wing-coverts lighter ashy; central tail-feathers light brown, the others more or less dark grey on the basal halves and light grey on the terminal halves.

Bill black; iris red; eyelids and skin of the face yellow; legs blood-red; claws horn-colour.

Length 13·5 inches, tail 5·5, wing 6·5, tarsus 1, bill from gape ·9. The female is of about the same size.

The Ring-Dove was obtained near Thayetmyo by both Capt. Feilden and myself; but it appears to be very rare, for I only met with it on one occasion; and it has not yet been procured elsewhere in British Burmah.

Dr. Anderson observed it in Independent Burmah near Bhamo; and it occurs in China, Japan and South-eastern Siberia. It is universally distributed over India and Ceylon, extending westwards into Europe.

This Dove frequents cultivated ground, being found in small flocks, as well as singly and in pairs. In India it breeds pretty nearly all the year through, making the usual flimsy nest of a Dove on low trees and shrubs, and laying two eggs.

654. TURTUR HUMILIS.

THE EASTERN RUDDY RING-DOVE.

Columba humilis, Temm. Pl. Col. 258. *Turtur humilis*, Jerd. B. Ind. ii. p. 482 (part.); Hume, *Nests and Eggs*, p. 507 (part.); *id.* S. F. ii. p. 269, iii. p. 165, iv. p. 292; Armstrong, S. F. iv. p. 338; Wald. Trans. Zool. Soc. ix. p. 219; David et Oust. Ois. Chine, p. 388; Hume & Dav. S. F. vi. p. 423; Hume, S. F. viii. p. 110; Bingham, S. F. ix. p. 194; Oates, S. F. x. p. 235. *Turtur tranquebaricus* apud Bl. B. Burm. p. 145. *Turtur humilior*, Hume, Proc. As. Soc. Beng. 1874, p. 241; *id.* S. F. iii. p. 279.

Description.—*Male.* Forehead, crown, nape, hind neck, sides of the head and cheeks ashy; a black collar on the hind neck immediately next the ashy; rump and upper tail-coverts darker ashy; chin white; throat, breast, abdomen, sides of the neck, back, scapulars, wing-coverts, tertiaries and outer webs of the secondaries vinous-red; remainder of the wing dark ashy; under wing-coverts, sides of the body, lower abdomen and vent ashy; under tail-coverts white; central tail-feathers ashy brown; the others dark ashy, broadly tipped with white, the white also occupying all the outer web of the outermost feathers.

The *female* has the black collar of the male; but the head and the whole upper plumage are brown; the lower plumage is rufous-grey where vinous-red in the male.

Iris dark brown; eyelids plumbeous; bill black; legs vinaceous brown; claws black; the joints of the scales on the legs white.

Length 9·5 inches, tail 4, wing 5·5, tarsus ·8, bill from gape ·75. The female is of the same size.

The present species differs from the allied *T. tranquebaricus* of India in having the plumage of a deeper red, the under wing-coverts dark ash instead of ashy white, and in having the head and rump darker in colour.

The Eastern Ruddy Ring-Dove is universally distributed over the Province; and Capt. Wardlaw Ramsay observed it in Karennee.

It extends north as far as Cachar, but is replaced in India by *T. tranquebaricus*. It ranges into China, Cochin China, and the Malay peninsula, and is found in the Philippine Islands.

The habits of this Dove are somewhat different from those of the preceding species: it is generally met with in flocks; and it affects well-wooded localities only, feeding under the shade of trees more frequently than in the open. I have never obtained the nest in Burmah; but this Dove will probably be found to breed throughout the dry season, making, as its ally does in India, a small nest of twigs in the outer branches of large trees, and laying two eggs.

Subfamily MACROPYGIINÆ.

Genus MACROPYGIA, *Swains.*

655. MACROPYGIA LEPTOGRAMMICA.

THE BAR-TAILED CUCKOO DOVE.

Columba leptogrammica, *Temm. Pl. Col.* 560. *Coccyzura tusalia*, *Hodgs. J. A. S. B.* xii. p. 937. *Macropygia tusalia*, *Jerd. B. Ind.* ii. p. 473; *Hume, Nests and Eggs*, p. 500; *Wald. in Bl. B. Burm.* p. 146; *Wardlaw Ramsay, Ibis*, 1877, p. 468; *Hume & Dav. S. F.* vi. p. 419; *Hume, S. F.* viii. p. 110. *Macropygia leptogrammica*, *Wald. Ibis*, 1875, p. 459.

Description.—*Male.* Forehead, chin and throat buff with a vinous tinge; crown, nape and sides of the head vinaceous with a metallic lilac gloss; back, rump, upper tail-coverts, scapulars, tertiaries and wing-coverts black barred with deep rufous, the hind neck glossed with metallic green or lilac; quills dark brown; central tail-feathers black barred with rufous; the next two pairs ashy at base, barred indistinctly with black, and rufous at the end; the three outer pairs ashy, with a black subterminal band; breast and sides of the neck vinous-brown, each feather with a concealed black bar and a metallic green or lilac tip; abdomen, vent and under tail-coverts buff; sides of the body tinged with ashy.

The *female* does not differ conspicuously from the male; the bars are more developed and the colours less bright and glossy, and the breast and upper abdomen are barred with brown.

Legs and feet pinkish brown or brownish red; bill dirty purplish or horny brown; irides, outer ring pink, inner ring blue. (*Davison.*) Iris white surrounded by pale lilac; orbital skin grey, with an inner rim of purple round the eye; bill blackish; legs purplish pink. (*Wardlaw Ramsay.*)

Length 15 inches, tail 7·5, wing 7·2, tarsus ·9, bill from gape 1.

The Bar-tailed Cuckoo Dove occurs in the north-eastern portion of Pegu, where Capt. Wardlaw Ramsay procured it on the Karin hills at 4000 feet elevation, and on the Tonghoo hills at an altitude of 3500 feet. He also observed it in Karennee. Mr. de Wet sent it to me in a collection of birds he formed in the country near Tonghoo and the higher hills to the east of that town. Mr. Davison obtained it in Tenasserim on Mooleyit mountain and at Kollidoo further north, at both of which localities he states that it was rare.

It occurs in the hill-tracts of Eastern Bengal, and along the Himalayas up to Nipal. It also inhabits Java; for Lord Walden some years ago informed us that the Javan bird differed in no respect from the Indian. A

small race of this Dove is found in Hainan, and has been named *M. minor* by Mr. Swinhoe.

The Cuckoo Doves are remarkable for their barred plumage and the great length of their tails. They are of a shy disposition, keeping to thick forests and associating in small flocks; they chiefly feed on trees, seldom descending to the ground. They breed in trees, making a nest of twigs, and laying two eggs. Captain Wardlaw Ramsay found the nest of the present species on the Karin hills in March.

656. MACROPYGIA ASSIMILIS.

THE TENASSERIM CUCKOO DOVE.

Macropygia assimilis, Hume, *S. F.* ii. p. 441; *Wald. in Bl. B. Burm.* p. 146; *Wardlaw Ramsay, Ibis*, 1877, p. 468; *Hume & Dav. S. F.* vi. p. 420; *Hume, S. F.* viii. p. 110.

Description. Forehead and crown chestnut, the black bases of the feathers showing through in some places; sides of the head and neck, hind neck and back brown minutely freckled with greyish white; rump and upper tail-coverts brown, suffused with rufous at the edges; wing-coverts, scapulars and tertiaries dark brown tipped with chestnut; quills dark brown; chin and throat fulvous; lower plumage rufous blotched with black on the breast; under wing-coverts chestnut; the four central tail-feathers brown, the others brown at base and the remainder chestnut with a subterminal dusky bar.

Legs and feet dark brownish red; bill pinkish red or pale purplish brown; irides sometimes grey, at other times grey with an inner ring of blue, at others pearly white; orbital skin pale blue. (*Davison.*)

Length 13 inches, tail 6·5, wing 5·6, tarsus ·7, bill from gape ·9.

Mr. Blyth gives *M. ruficeps* from Burmah; but when he wrote his Catalogue the present closely allied species had not been discriminated. I do not think it probable that both species occur in Tenasserim.

The present bird differs from *M. ruficeps* from Sumatra and Java in having black marks on the breast, and in having the hind neck and back brown with no metallic gloss.

The Tenasserim Cuckoo Dove was obtained by Mr. Davison on Mooleyit mountain, and further north at Kollidoo, and it does not appear to be very rare. Captain Wardlaw Ramsay procured it on the Karin hills, east of Tonghoo, at an elevation of 3000 feet; and Mr. de Wet sent it to me from the same hills.

It is difficult to trace its distribution out of Burmah; but it extends some way down the Malay peninsula, Mr. Hume having received it from Ulu Langat.

Subfamily PHAPIDINÆ.

Genus CHALCOPHAPS, *Gould*.

657. CHALCOPHAPS INDICA.

THE EMERALD DOVE.

Columba indica, *Linn. Syst. Nat.* i. p. 284. *Chalcophaps indica*, *Jerd. B. Ind.* ii. p. 484; *Hume, Nests and Eggs*, p. 509; *id. S. F.* ii. p. 269, iii. p. 165; *Salvad. Ucc. Born.* p. 299; *Bourdillon, S. F.* iv. p. 404; *Bl. B. Burm.* p. 147; *David et Oust. Ois. Chine*, p. 384; *Anders. Yunnan Exped.* p. 667; *Hume & Dav. S. F.* vi. p. 424; *Hume, S. F.* viii. p. 110; *Legge, Birds Ceylon*, p. 714; *Oates, S. F.* x. p. 235; *Kelham, Ibis*, 1881, p. 528.

Description.—*Male*. Forehead and a supercilium greyish white; crown, nape, a narrow line down the hind neck and a band across the upper back deep bluish grey; sides of the head and neck and the whole lower plumage deep vinaceous, rather duller on the abdomen; under tail-coverts ashy; back, wing-coverts and tertiaries bright metallic green; the smaller coverts near the edge of the wing chiefly white; below the green of the back a narrow band of ashy, then a broad black band, then another ashy one, and finally a very broad band, which, with the upper tail-coverts, is dark ashy brown tipped darker; the three central pairs of tail-feathers dark brown tipped paler, the others banded with black and ashy; quills dark brown, the outer webs of the secondaries chiefly metallic green; under wing-coverts chestnut.

The *female* differs in having the colours of her plumage much duller and in having hardly any white on the wing-coverts.

Bill red; iris dark brown; eyelids plumbeous; legs dusky red; claws pale horn-colour.

Length 10·5 inches, tail 4, wing 5·8, tarsus 1, bill from gape ·9. The female is a little smaller.

The Emerald Dove is found over the entire province in well-wooded localities.

It occurs all over India, Ceylon and the Andamans, the Indo-Burmese countries, South China, Cochin China, Siam, the Malay peninsula and all the islands nearly down to Australia.

This beautiful Dove frequents forests and thick gardens, such as those which are to be found outside Rangoon on the Prome road. It is met with as often in small flocks as in pairs; and it feeds entirely on the ground. The nest is placed in bushes; and it will probably be found to breed in Burmah during the hot weather and the early part of the rains.

Genus GEOPELIA, *Swains.*

658. GEOPELIA STRIATA.

THE BARRED GROUND-DOVE.

Columba striata, Linn. *Syst. Nat.* i. p. 282. *Geopelia striata*, *Salvad. Ucc. Born.* p. 298; *Hume & Dav. S. F.* vi. p. 423; *Hume, S. F.* viii. p. 110; *Kelham, Ibis*, 1881, p. 528.

Description.—*Male and female.* Forehead and crown as far as the eyes, cheeks, chin and throat pure grey; upper part of the ear-coverts grey, lower part brown; remainder of the crown and nape vinous brown; sides of the neck, whole hind neck and upper back, sides of the breast and of the body white, closely and finely barred with black; centre of the breast and abdomen vinaceous; vent and under tail-coverts white; lower back, rump, upper tail-coverts, scapulars, wing-coverts and tertiaries brown, each feather with a terminal black bar; primaries and secondaries dark brown, the latter broadly edged with the colour of the back; central tail-feathers pale brown, the others dark brown, the four outer pairs broadly tipped with white; under wing-coverts chestnut.

What appear to be immature birds have the centre of the breast and the whole under wing-coverts barred with black.

Front of tarsus and toes pinkish purple with the scutulation divided by pink lines; back of tarsus and soles fleshy pink; claws dirty greenish blue; base of bill pale clear blue, rest of bill bluish white, darkening towards the tip; irides generally white, occasionally grey-brown or pale slaty blue; orbital skin pale clear blue tinged with green. (*Davison.*)

Length 9 inches, tail 4·3, wing 4, tarsus ·8, bill from gape ·7. The female is of about the same size.

Mr. Davison met with this Dove in the extreme south of Tenasserim, on the Pakchan Creek.

It extends down the Malay peninsula, and is found in Sumatra, Java, Borneo, the Philippines, Celebes and Lombock. It appears to have been introduced into Madagascar and the Seychelles Islands.

Mr. Davison remarks:—"The general habits of this little Dove are the same as those of *Turtur tigrinus*, except that it never occurs in flocks, being always found singly or in pairs. It keeps about cultivation, and feeds on the ground, walking about here and there and picking up seeds. It is not at all shy, but very rare in Tenasserim, even where it does occur. Its note is quite unlike that of any of the other Doves that I am acquainted with, and sounds like *kok-a-kurr-kurr* softly repeated several times."

Subfamily CALÆNINÆ.

Genus CALÆNAS, *G. R. Gray*.

659. CALÆNAS NICOBARICA.

THE HACKLED GROUND-PIGEON.

Columba nicobarica, *Linn. Syst. Nat.* i. p. 283. *Calœnas nicobarica*, *Hume*, *S. F.* ii. p. 271; *id. Nests and Eggs*, p. 510; *Bl. B. Burm.* p. 147; *Hume & Dav. S. F.* vi. p. 425; *Hume, S. F.* viii. pp. 68, 110.

Description.—In the adult the entire tail and longer lower and upper tail-coverts are pure white; the entire head and neck all deep slaty grey, blackish slaty or even blackish brown in some; from the base of the occiput and the whole back of the neck stream down a thick bunch of narrow hackles, those from the occiput more or less disintegrated and hair-like, while those from the base of the neck are more regular feathers; the former entirely dark slaty grey, the latter metallic green shot with gold and copper and margined everywhere with this slaty grey; the whole of the rest of the upper plumage, excluding the tail and longer upper tail-coverts, is refulgent with metallic reflections. The lesser coverts immediately along the ulna and at the carpal joint, the outer webs of the primaries, winglet and greater coverts, the earlier secondaries and their greater coverts are glossed with a deep blue; the rest of the secondaries and their greater coverts, most of their median coverts, the rump and shorter upper tail-coverts brilliant green, like the speculum of a drake's wing, but with more or less of golden or bronzy reflections in some lights; scapulars, interscapulary region, lesser and median coverts adjoining the scapulars similar, but with a much stronger coppery glow. This fairly represents the general distribution of colours; but some birds are altogether greener, and some are altogether more coppery; and the colours of the feathers vary in every light, and it is as difficult to convey in words any adequate description of the ever-changing tints of this bird as it would be to paint the sparkle of a diamond. The upper breast is the same colour as the head; but even here, if the feathers are lifted, it will be seen that inside the broad slaty grey tippings there is a broad patch tinged with metallic green; and the lower breast, abdomen, sides, flanks, vent and a few of the shortest under tail-coverts are all variegated deep metallic green and blackish slaty, the latter colour being confined to a terminal fringe to each feather. The first two primaries almost entirely want the blue metallic gloss; and these, together with the inner webs of the primaries and secondaries, their entire lower surfaces and their longest lower coverts, are blackish brown. The rest of the wing-lining and the axillaries are a brighter or duller metallic green,

generally tinged bluer along the edge of the wing : in some specimens these parts are deep blackish slaty, only faintly tinged with metallic green and blue ; in some specimens, again, the grey tippings to the breast and abdomen are wanting ; the breast is deep metallic green, the feathers tipped purplish ; the tibial plumes are a rich purplish blue ; the abdomen, flanks and sides are a somewhat bright metallic green, with more or less of a golden glow at the tips and margins of the feathers. Almost all the scapulars, the feathers of the interscapulary region, and most of the lesser and median coverts are split at the ends in a very curious manner, the shaft only reaching to within from an eighth to a quarter of an inch of the end of the feather.

In the young bird the protuberances at the base of the culmen, which in the adult males when we obtained them were fully as large as a pea, are entirely wanting ; the frontal feathers do not advance nearly so far as in the old birds ; there are no hackles ; the tail and all its upper coverts are bronzy green ; the whole mantle and scapulars are duller and at the same time much redder and more coppery than in any of the adults ; the head, neck all round, and entire lower parts are brown ; the tips of the feathers glossed with dull dark metallic green ; the whole of the rest of the plumage is duller everywhere than in the adults. (*Hume.*)

The legs and feet vary from pinkish lake to dull purplish lilac ; the claws are chrome-yellow, the soles dull greyish yellow ; bill, cere and fleshy protuberance at the base of the culmen (which, by the way, appears to be less developed in the female than in the male) dark blackish grey or deep slaty ; the irides are deep brown. (*Hume.*)

Length 16 inches, tail 3·5, wing 10, tarsus 1·7, bill from gape 1·5. The female is of the same size.

The Hackled Ground-Pigeon is said by Mr. Blyth to be common in the Mergui archipelago. Mr. Davison did not meet with it in any of those islands ; but he probably searched for them at the wrong time of the year.

Mr. Blyth also gives it from the Malay peninsula. Dr. Tiraud states that it is found in the island of Poulo-Condore off the coast of Cochin China and some other smaller islands. It is met with in New Guinea and some of the adjacent islands of the archipelago. Its true headquarters, however, appears to be the Nicobar Islands, especially the one called Batty Malve ; and it ranges into the Andaman group.

This Pigeon seems to feed entirely on fruits ; and it is found generally in small parties on the ground. The nest is placed on the branch of some bushy tree, and never, according to Mr. Davison, contains more than one egg.

Subfamily CARPOPHAGINÆ.

Genus CARPOPHAGA, *Selby*.

660. CARPOPHAGA ÆNEA.

THE IMPERIAL GREEN PIGEON.

Columba ænea, *Linn. Syst. Nat.* i. p. 283. *Columba sylvatica*, *Tick. J. A. S. B.* ii. p. 581. *Carpophaga sylvatica*, *Jerd. B. Ind.* ii. p. 455; *David et Oust. Ois. Chine*, p. 381. *Carpophaga ænea*, *Hume, Nests and Eggs*, p. 496; *id. S. F.* ii. p. 260, iii. p. 163; *Bl. B. Burm.* p. 144; *Wald. Trans. Zool. Soc.* ix. p. 215; *Armstrong, S. F.* iv. p. 337; *Inglis, S. F.* v. p. 39; *Hume & Dav. S. F.* vi. p. 416; *Hume, S. F.* viii. p. 109; *Legge, Birds Ceylon*, p. 718; *Bingham, S. F.* ix. p. 194; *Parker, S. F.* ix. p. 481; *Oates, S. F.* x. p. 235; *Kelham, Ibis*, 1881, p. 527.

Description.—*Male and female.* The whole head and neck and the entire under plumage pearl-grey tinged with ruddy; base of the bill and the chin whitish; under tail-coverts deep maroon; back, rump, upper tail-coverts, tertiaries and upper wing-coverts brilliant coppery green, with a purple, blue or lilac gloss in places; tail dark coppery green, the neighbourhood of the shafts purple or blue; primaries and secondaries greenish brown, tinged with ash on the outer webs.

Iris red; bill grey; the region of the nostrils dull red; edges of the eyelids, legs and feet purplish red.

Length 17 inches, tail 6·5, wing 9, tarsus 1·1, bill from gape 1·5. The female is smaller. This species varies very much in size, some individuals being very small. The variation in size, coupled with variations in colour, have given rise to the separation of this bird into many species, the validity of which is very doubtful.

The Imperial Green Pigeon is common over the whole Province, alike in the hills and plains where there is forest.

It is found over the whole of India except the north-west portion, in Ceylon and the Andamans, the Indo-Burmese countries, South China and Cochin China. It extends down the Malay peninsula; and, with modifications of plumage and size, it occurs in Sumatra, Java, Borneo, Flores, Lombok and the Philippine Islands.

This fine large Pigeon is generally diffused throughout the forests and the well-wooded parts of the country, wherever, in fact, there are trees which yield edible fruits; and it is a resident. It is entirely arboreal, going about in parties and occasionally in couples, and feeds on fruit. It makes its nest in thickets and bamboo bushes, and lays but one egg. Mr. Inglis, however, brings to notice that he once found two young birds in the same nest. Capt. Bingham found the nest in Tenasserim in March.

661. CARPOPHAGA GRISEICAPILLA.

THE GREY-HEADED IMPERIAL PIGEON.

Ducula griseicapilla, *Wald. Ann. Nat. Hist.* ser. 4, xvi. p. 228; *id. Ibis*, 1875, p. 459; *Hume, S. F.* iii. p. 402; *Wardlaw Ramsay, Ibis*, 1877, p. 467. *Carpophaga griseicapilla*, *Davison, S. F.* v. p. 460; *Hume & Dav. S. F.* vi. p. 418; *Hume, S. F.* viii. p. 109. *Carpophaga insignis apud Bl. B. Burm.* p. 144.

Description.—Chin and throat pure white; remainder of lower surface pale grey, the breast being tinged with lilac; back of neck vinous; interscapular region brown with a vinous tinge; wing-coverts brown like the back, but not so strongly tinted with vinous; quills dark brown, almost black; uropygium and upper tail-coverts dark ash; rectrices above dark brown, with a broad grey terminal band; lower surface of rectrices pale grey; under tail-coverts pale cream-colour; forehead, crown, nape, cheeks and ear-coverts pure French grey. (*Walden.*)

Legs and feet deep lake-pink; bill deep lake-pink, except horny portion, which is pale whitish brown; irides pearly grey (*Davison*). Iris greyish white; orbital skin greyish brown; bill reddish plum-colour, whitish at the tip (*Wardlaw Ramsay*).

Length 18·5 inches, tail 8, wing 9·5, tarsus 1·1, bill from gape 1·6. The female is rather smaller.

The Grey-headed Imperial Pigeon was obtained by Capt. Wardlaw Ramsay on the Karin hills east of Tonghoo at from 4000 to 4200 feet elevation; and on these hills it appears to be confined to the higher parts. Mr. Davison met with it on Mooleyit mountain, where he states that it was not uncommon. He found the nest in January, containing one egg.

Mr. Blyth, in his Catalogue, gives *C. insignis* from the mountains of Tenasserim (misprinted *Arrakan*, as is evident from a perusal of the original reference, *J. A. S. B.* xxviii. p. 416). There is little doubt that by this name he intended to indicate *C. griseicapilla*.

Mr. Hume mentions a large Pigeon which Mr. Davison observed in great quantities at Mergui in August, and suggests that it may be *C. badia*. This Imperial Pigeon may be recognized by its chestnut-red back and wing-coverts. Observers in Tenasserim should be on the look-out for it.

662. CARPOPHAGA BICOLOR.

THE PIED IMPERIAL PIGEON.

Columba bicolor, Scop. Del. Flor. et Faun. Insub. ii. p. 94. *Carpophaga bicolor*, Ball, S. F. i. p. 79; Hume, Nests and Eggs, p. 496; id. S. F. ii. p. 264; Salvad. Ucc. Born. p. 292; Bl. B. Burm. p. 145; Hume & Dav. S. F. vi. p. 418; Hume, S. F. viii. p. 109; Kelham, Ibis, 1881, p. 527. *Myristicivora bicolor*, Wald. Trans. Zool. Soc. ix. p. 217.

Description.—*Male and female.* Winglet, primaries and secondaries black; terminal portion of the tail black, the black occupying about half the feather on the centrals, decreasing in extent towards the outer feathers, and on the outermost pair occupying merely a small portion of the tip and the outer web; remainder of the plumage white with a creamy or yellow tinge.

Legs and feet pale smalt-blue; bill leaden blue, the tip darkish horny or dark plumbeous; irides dark brown. (*Davison.*)

Length 16 inches, tail 5, wing 9, tarsus 1.2, bill from gape 1.3. The female is of the same size.

The Pied Imperial Pigeon is said by Mr. Blyth to occur in the Mergui archipelago. Mr. Davison did not, however, observe it in any of the islands.

This species occurs in the Andamans and Nicobars, and has a very extensive range, being found in the Malay peninsula and all the islands of the archipelago to New Guinea.

It has the same habits as the other Imperial Pigeons, but appears to be a sea-coast-loving species. It breeds in mangrove trees, and, so far as is known, lays only one egg.

C. insularis, from the Nicobar Islands, may occur in the Mergui archipelago. It is larger than *C. ænea*; the upper plumage is darker and bluer; and the under tail-coverts are dingy brown, tinged with chestnut in places, but not uniformly deep chestnut or maroon as in *C. ænea*. *C. palumboides*, from the Andamans, has the wings and tail blackish and the rest of the plumage dusky slaty-blue.

Subfamily TRERONINÆ.

Genus SPHENOCERCUS, *G. R. Gray*.

663. SPHENOCERCUS SPHENURUS.

THE WEDGE-TAILED GREEN PIGEON.

Vinago sphenura, *Vig. P. Z. S.* 1831, p. 173. *Sphenocercus sphenurus*, *Jerd. B. Ind.* ii. p. 453; *Hume & Henders. Lah. to Yark.* p. 270; *Hume, Nests and Eggs*, p. 494; *id. S. F.* iii. p. 163; *Wald. in Bl. B. Burm.* p. 144; *Hume & Dav. S. F.* vi. p. 415; *Hume, S. F.* viii. p. 109; *Scully, S. F.* viii. p. 339; *Oates, S. F.* x. p. 235.

Description.—*Male.* Head, neck and lower plumage greenish yellow, the crown and breast washed with rufous; upper back slaty green; wing-coverts, tertiaries, back, rump and upper tail-coverts dark dull green; the centre of the back and the lesser coverts washed with maroon; primaries and secondaries blackish; the greater wing-coverts and secondaries narrowly margined with yellow; central tail-feathers green, the others ashy, more and more washed with green as they approach the centre; flanks and region of the vent mixed ashy green and yellow; under tail-coverts pale cinnamon.

The *female* differs in having no maroon on the wings and back, in having no rufous tinge on the crown and breast, in being of a darker green, and in having the under tail-coverts centred with ashy green.

Legs, feet and claws crimson-pink; bill dull smalt-blue, horny portion pale skimmed-milk-blue; orbital skin pale smalt; irides with an inner ring of pale bright blue and an outer ring of buffy pink. (*Davison*.)

Length 13 inches, tail 6, wing 7, tarsus .9, bill from gape .9. The female appears to be smaller and to have a shorter tail.

The Wedge-tailed Green Pigeon is found throughout the hill-portions of Pegu and the forests skirting them. Mr. de Wet sent it to me from near Tonghoo; and Capt. Wardlaw Ramsay procured it on the Tonghoo hills. Mr. Davison met with it in Tenasserim as far south as Mooleyit; and this is probably its southern limit.

It occurs in the hill-tracts of Eastern Bengal and along the Himalayas to the north-west.

The Pigeons of this and the next three genera are termed "Green Pigeons," from the prevailing colour of their plumage. The males are not difficult to be identified; but the females resemble each other very closely. The two birds of this genus may be at once separated from all the others by their peculiar wedge-shaped tails and by the absence of a sinuation on the third primary.

The present species is found in thick-forest country, frequenting trees

which bear fruit, and going about in flocks. In India it breeds from April to July (and it will probably be found breeding in Burmah about the same time), constructing a nest of twigs on the outer branches of trees, and laying two eggs.

664. SPHENOCERCUS APICICAUDA.

THE PINTAILED GREEN PIGEON.

Treron apicauda, *Hodgs. J. A. S. B.* xiv. p. 854. *Sphenocercus apicaudus*, *Jerd. B. Ind.* ii. p. 454; *Wald. in Bl. B. Burm.* p. 144; *Hume & Dav. S. F.* vi. p. 415; *Hume, S. F.* viii. p. 109.

Description.—*Male.* General colour green, tinged with yellow on the crown, rump, upper tail-coverts and lower plumage; breast tinged with rufous; under tail-coverts cinnamon, edged with whitish; primaries and secondaries blackish, very narrowly margined with yellow; median and greater coverts and tertiaries more broadly edged with yellow on the outer webs; central tail-feathers green at base, ashy on the remainder, the others ashy with a broad blackish band across the middle.

The *female* merely differs in wanting the rufous tinge on the breast.

Legs bright crimson-pink; bill pale blue, horny portion whitish; facial skin pale blue; irides, inner ring bright ultramarine blue, outer ring buffy pink. (*Davison.*)

Length 16 inches, tail 8, wing 6·2, tarsus ·9, bill from gape 1. The female is rather smaller, and has the tail shorter.

The Pintailed Green Pigeon was sent to me by Mr. de Wet from the hills east of Tonghoo; and Capt. Wardlaw Ramsay procured it in the same locality. Mr. Davison met with it in Tenasserim as far south as Mooleyit mountain.

It is found in the hill-tracts of Eastern Bengal, and along the Himalayas from Assam to Nipal.

There is very little on record about this Pigeon; but its habits do not probably differ in any respect from those of the preceding.

S. korthalsi, which occurs in Cochin China, is not unlikely to be met with in Tenasserim. It has the middle tail-feathers of great length; and it is green, with the mantle maroon and the breast orange.

Genus TRERON, Vieill.

665. TRERON NIPALENSIS.

THE THICK-BILLED GREEN PIGEON.

Toria nipalensis, *Hodgs. As. Res.* xix. p. 164. **Treron nipalensis**, *Jerd. B. Ind.* ii. p. 445; *Hume, S. F.* iii. p. 160; *Bl. & Wald. B. Burm.* p. 143; *Hume & Dav. S. F.* vi. p. 410; *Hume, S. F.* viii. p. 109; *Bingham, S. F.* ix. p. 193; *Oates, S. F.* x. p. 235.

Description.—*Male.* Forehead and crown clear ashy, tinged with green on the nape; sides of the head and neck, and a broad collar round the hind neck extending to the upper back dull green; chin, throat, breast, abdomen and sides of the body brighter green, the latter tinged with slaty; back, scapulars and most of the lesser wing-coverts maroon; remainder of the lesser coverts and the tertiaries green; median coverts green, broadly edged with yellow, the outermost ones mostly tinged with blackish; greater coverts blackish, edged with yellow; primaries and their coverts black, the latter very narrowly edged with whitish; secondaries black, edged with yellow on the outer web; lower back, rump and upper tail-coverts green; central tail-feathers wholly green, the next pair greenish with ashy tips, the others ashy tinged with green on the outer webs and with a bar of black across; vent green dashed with white; under tail-coverts cinnamon-colour, the lateral feathers green tipped with white.

The *female* differs in having the maroon of the upper plumage replaced by dark green, and in having the under tail-coverts white irregularly barred with green.

Bill red at base, yellow on culmen, bluish white on the corneous portion; mouth reddish; eyelids greenish blue; iris blue; legs bright red; claws pale horn.

Length 10·8 inches, tail 3·5, wing 5·7, tarsus ·9, bill from gape ·95. The female is a trifle smaller.

The birds of this genus may be separated from the other Green Pigeons by the shape of the bill, the corneous portion of which is very large, extending back to the edge of the feathers of the forehead; and the third primary is sinuated on the inner web.

The Thick-billed Green Pigeon is found throughout the more hilly and well-wooded portions of the Province, and is abundant.

To the north it occurs in the hill-tracts of Eastern Bengal and the South-eastern Himalayas; and to the south it extends down the Malay peninsula to Sumatra; it also occurs in Siam and Cochin China.

Like other Green Pigeons, it is found in flocks feeding on fruits and visiting those trees which produce them. Capt. Bingham found it breeding in Tenasserim in February and March; the number of eggs laid is two.

Genus CROCOPUS, *Bonap.*

666. CROCOPUS VIRIDIFRONS.

THE YELLOW-FRONTED GREEN PIGEON.

Treron viridifrons, *Bl. J. A. S. B.* xiv. p. 849. **Crocopus viridifrons**, *Hume, S. F.* iii. p. 161; *Bl. B. Burm.* p. 143; *Oates, S. F.* v. p. 163; *Anders. Yunnan Exped.* p. 664; *Hume & Dav. S. F.* vi. p. 410; *Hume, S. F.* viii. p. 109; *Bingham, S. F.* ix. p. 194; *Oates, S. F.* x. p. 235.

Description.—*Male and female.* Lores, forehead, cheeks, throat, breast sides and back of the neck deep yellow; ear-coverts, crown, nape and a band across the back of the nape ashy; abdomen, sides of the body and under wing-coverts ashy; thighs bright yellow; vent mixed yellow and ashy; under tail-coverts maroon tipped with white; back, scapulars, tertiaries, rump and lesser wing-coverts dull green; a patch of lilac near the bend of the wing; winglet and primary-coverts dark brown; quills dark brown edged with yellow; greater coverts dark brown broadly edged with yellow; basal half of the tail yellow, terminal half and upper coverts ashy.

Iris blue with an outer circle of pink; eyelids plumbeous; mouth flesh-colour; soft parts of the bill greenish, hard parts bluish white; legs orange-yellow; claws bluish.

Length 12·8 inches, tail 4·7, wing 7·5, tarsus 1, bill from gape 1. The female is a little smaller.

This Pigeon differs from its Indian ally, *C. phainopterus*, in having the forehead and basal half of the tail green.

The Pigeons of this genus have a distinct style of coloration; the sexes are alike, and the legs are yellow; the third primary is sinuated on the inner web.

The Yellow-fronted Green Pigeon is spread over the whole Province, alike in the hills and plains, as far south as Moulmein; and Capt. Bingham observed it in the Thoungyeen valley. Dr. Armstrong did not meet with it in the Irrawaddy delta; but I think it will probably be found in that part of the country.

It extends to the north through the Indo-Burmese countries to Cachar, and eastwards to Cochin China.

This species is perhaps not so abundant as some of the other species; but it is more generally met with wherever there are suitable fruit-bearing trees. I found the nest in Pegu in April, Capt. Bingham in Tenasserim in March. The nest is placed in low trees; and the eggs are two in number.

Genus OSMOTRERON, *Bonap.*

667. OSMOTRERON BICINCTA.

THE ORANGE-BREASTED GREEN PIGEON.

Vinago bicincta, *Jerd. Madr. Journ.* xii. p. 13. **Osmotreron bicincta**, *Jerd. B. Ind.* ii. p. 449; *Hume, Nests and Eggs*, p. 493; *Bl. & Wald. B. Burm.* p. 144; *Armstrong, S. F.* iv. p. 337; *Oates, S. F.* v. p. 163; *Hume & Dav. S. F.* vi. p. 411; *Hume, S. F.* viii. p. 109; *Legge, Birds Ceylon*, p. 725; *Oates, S. F.* x. p. 235.

Description.—*Male.* Forehead, front of crown, sides of the head and neck, chin and throat yellowish green; hinder part of crown, nape and hind neck ashy; breast orange, separated from the green of the neck by a lilac collar; under wing-coverts and axillaries ashy; abdomen and vent greenish yellow; sides of the body ashy; the flanks yellow streaked with dark green; under tail-coverts cinnamon; back, rump, upper tail-coverts and lesser wing-coverts green; winglet and primaries and the primary-coverts black; secondaries black narrowly margined with yellow; tertiaries and greater wing-coverts green, broadly edged on the outer web with yellow; central tail-feathers ashy, the others darker ashy, and all the feathers broadly tipped with pale ashy white.

The *female* is very similar, but has no lilac or orange on the breast, this part being of the same green as the abdomen; the under tail-coverts are pale ashy white dashed with brown or dull greenish.

Bill dull green; iris blue with an outer red ring; legs pink.

Length 12 inches, tail 4·2, wing 6·3, tarsus ·8, bill from gape 1. The female is rather smaller.

The Orange-breasted Green Pigeon is extremely common, being found in all portions of the Province except on the higher hills of Tenasserim.

It occurs over the greater part of the peninsula of India and Ceylon, and probably in the Indo-Burmese countries; and to the east it extends to Cochin China. It is said to range as far south as Malacca.

This bird has the usual habits of the Green Pigeons, associating in flocks and feeding on fruit. I have found the nest in Pegu from March to May; it is composed of a few twigs and placed on one of the outer branches of a large tree, or sometimes in a bush.

The Pigeons of this genus have the bill of the ordinary form, similar to that of *Crocopus* (that is, with half the upper mandible corneous and half soft); the third primary is sinuated on the inner web; the legs are red; and the sexes differ in coloration. They may consequently be separated at once

by the form of the bill from *Treron*, and by the colour of the legs from *Crocopus*.

There will be no difficulty found, I think, in discriminating the males of the four species of *Osmotreron* that occur in Burmah; with the females, however, it is different, as they are all very similar. The following remarks may facilitate the identification of the females. The first two have the head green and the central tail-feathers ashy; and whereas *O. bicincta* has an ashy collar on the nape and hind neck, *O. vernans* has the whole head and neck green. In the other two species the head is grey and the central tail-feathers green; and while in *O. phayrii* the head is pale bluish grey and the wing more than six inches in length, in *O. fulvicollis* the head is slaty grey and the wing less than six inches in length.

668. OSMOTRERON VERNANS.

THE PINK-NECKED GREEN PIGEON.

Columba vernans, Linn. Mantiss. Plant. p. 526. *Columba viridis*, Scop. Del. Flor. et Faun. Insub. ii. p. 94. *Osmotreron viridis*, Hume, S. F. i. p. 461. *Osmotreron vernans*, Wald. Trans. Zool. Soc. viii. p. 81; Hume & Dav. S. F. vi. p. 411; Hume, S. F. viii. p. 109; Kelham, Ibis, 1881, p. 526. *Treron vernans*, Salvad. Ucc. Born. p. 286.

Description.—*Male.* The whole head, chin and throat ashy; nape, hind neck, sides of the neck, fore neck and upper breast vinaceous pink; lower breast orange; abdomen greenish yellow; sides of the body ashy; vent and flanks mixed green and yellow; under tail-coverts deep chestnut; back, scapulars, rump, tertiaries and wing-coverts green; the outer median and greater coverts and some of the tertiaries margined with yellow; primaries and secondaries blackish, some of them very narrowly margined with yellow; upper tail-coverts rufescent; tail-feathers deep ashy, with a broad blackish band at the end, and tipped with paler ashy.

The *female* has the whole head, neck and breast green, and the under tail-coverts yellowish white marked with cinnamon and dull ashy green.

The legs and feet are of a darker or lighter carnation pink, sometimes with a purple shade; the bill dull white or pale plumbeous; the cere a dirty yellow. The irides consist of three rings:—the outermost buff, buffy pink or pink; the next prussian blue; the innermost, next the pupil, bright ultramarine blue. (*Davison.*)

Length 11 inches, tail 4, wing 5·7, tarsus ·8, bill from gape ·85. The female is rather smaller.

The Pink-necked Green Pigeon occurs in the south of Tenasserim, from Mergui down to Malewoon.

It extends down the Malay peninsula and eastwards to Cochin China; and it is found in Sumatra, Java, Borneo, Celebes and the Philippine Islands.

Lieutenant Kelham found this species breeding at Perak in the Malay peninsula in March, on bushes in swampy valleys, the nest being from six to ten feet from the ground.

669. OSMOTRERON PHAYRII.

PHAYRE'S GREEN PIGEON.

Osmotreron phayrii, *Bl. J. A. S. B.* xxxi. p. 344; *Jerd. B. Ind.* ii. p. 451; *Hume*, *S. F.* iii. p. 162; *Bl. B. Burm.* p. 144; *Hume & Dav. S. F.* vi. p. 412; *Hume*, *S. F.* viii. p. 109; *Bingham*, *S. F.* ix. p. 194; *Oates*, *S. F.* x. p. 235.

Description.—*Male.* Forehead, crown and nape ashy; neck, upper back, sides of neck and sides of the head green; lower back, scapulars, lesser wing-coverts and the greater ones next the body deep maroon; rump and upper tail-coverts green; median and greater wing-coverts blackish, broadly edged with bright yellow; quills black, narrowly margined on the outer web with yellow, tertiaries broadly edged with the same; centre tail-feathers green, the others green at base with a broad ashy tip and a black bar in front of the ashy, the black bar and ashy tip obsolete on the pair next the centrals and getting more pronounced towards the outer part of the tail; chin and throat yellowish; remainder of lower plumage green, the breast tinged with orange, the sides of the body with ashy, and the feathers of the flanks and legs with all but the tips yellow; under tail-coverts cinnamon; under wing-coverts and axillaries ashy.

The *female* has the maroon upper plumage of the male replaced by green; there is no orange on the breast; and the under tail-coverts are mingled green, ashy and white.

Legs lake-red; irides blue, with an outer circle of pink; eyelids plumbeous; bill bluish, the base darker.

Length 11.5 inches, tail 4, wing 6.3, tarsus .9, bill from gape 1. The female is of the same size.

Phayre's Green Pigeon occurs plentifully in all the hill-tracts of the Province as far south as Tavoy, below which place Mr. Davison does not appear to have observed it.

It extends to the east as far as Cochin China, and north to Assam and Lower Bengal.

This species appears to be confined to the denser forests on the hills; and I do not remember to have ever met with it in the plains. There is nothing remarkable about its habits.

670. OSMOTRERON FULVICOLLIS.

THE RUDDY GREEN PIGEON.

Columba fulvicollis, Wagl. *Syst. Av.*, *Columba*, no. 8; *Wald. Trans. Zool. Soc.* ix. p. 213. *Treron fulvicollis*, *Salvad. Ucc. Born.* p. 238. *Osmotreron fulvicollis*, *Hume & Dav. S. F.* vi. p. 413; *Hume, S. F.* viii. p. 109.

Description.—*Male.* The whole head and neck, with the upper breast, ruddy vinaceous; lower breast the same, but paler; abdomen green; sides of the body ashy; vent and flanks mixed ashy green and yellow; thighs bright yellow; under tail-coverts cinnamon; back, scapulars and lesser wing-coverts maroon; rump ashy green; upper tail-coverts and central tail-feathers dull green; the other tail-feathers green at base, broadly tipped with pale ashy and with a subterminal dark bar; median and greater wing-coverts, secondaries and tertiaries blackish, edged on the outer web with yellow; primaries all blackish.

The *female* is very similar to the female of *O. phayrii*, but is considerably smaller.

Legs and feet in the male purplish pink, in the female lake-pink; claws dead white in both sexes; upper mandible to just beyond nostril and lower mandible to angle of gonyes, in the male deep red, in the female dull red; rest of bill in both sexes dead white tinged strongly with greenish blue; irides in the male buffy pink, in the female with an outer ring of pink and an inner one of ultramarine blue; in both sexes the orbital skin is plumbeous green, the edge of the eyelid orange. (*Davison.*)

Length 10·5 inches, tail 3·5, wing 5·5, tarsus ·8, bill from gape ·8. The female is rather smaller.

The Ruddy Green Pigeon was procured by Mr. Davison in the extreme south of Tenasserim, where it appears to be rare and a migrant, visiting that part of the country only in December and January.

It extends to the east as far as Cochin China; it ranges down the Malay peninsula, and occurs in Sumatra, Bangka, Borneo and the Philippine Islands.

This Pigeon is probably only partially migratory, travelling from one part of the country to another as the fruits on which it feeds ripen.

Order XII. GALLINÆ.

Family PHASIANIDÆ.

Subfamily PAVONINÆ.

Genus PAVO, Linn.

671. PAVO MUTICUS.

THE BURMESE PEAFAWL.

Pavo muticus, Linn. *Syst. Nat.* i. p. 268; *Elliot, Mon. Phas.* i. pl. 5; *Hume, S. F.* iii. p. 165; *Bl. & Wald. B. Burm.* p. 147; *David et Oust. Ois. Chine*, p. 402; *Anders. Yunnan Exped.* p. 668; *Hume & Dav. S. F.* vi. pp. 425, 520; *Hume, S. F.* vii. p. 455, viii. p. 110; *Hume & Marsh. Game Birds*, i. p. 94, pl.; *Bingham, S. F.* ix. p. 195; *Oates, S. F.* x. p. 235; *Kelham, Ibis*, 1881, p. 529.

Description.—It is unnecessary to describe the brilliant plumage of this bird; and I shall content myself with pointing out the differences between the Burmese and the Indian Peafowl. Structurally they may be distinguished at a glance. In *P. cristatus* the crest is composed of feathers the shafts of which are bare except at the tips; in *P. muticus* the crest-feathers are webbed throughout their length. The coloration of the two is also very distinct. In *P. cristatus* the whole head, neck and breast are of a beautiful purplish blue, the scapulars, tertiaries and the lesser wing-coverts rufescent barred with black, and the skin of the face greyish white; in *P. muticus* the head, the whole neck and the breast are brilliant green, the scapulars, tertiaries and lesser wing-coverts are uniform and unbarred, and the skin of the face is blue above and round the eyes, deep yellow on the remainder of the face. The females may be distinguished by the form of the crest as well as by the coloration of the neck and breast and skin of the face, all of which are similar to the same parts of the male.

Iris brown; legs and bill horny brown; facial skin blue on the upper, yellow on the posterior and lower part.

Length about 45 inches, tail 16, wing 18.5, tarsus 6, bill from gape 2.3. The female is smaller in all her dimensions. The train of the male, the feathers of which constitute the upper tail-coverts and not the tail itself, reaches sometimes to 45 inches beyond the tip of the tail. The total length of the male, from the tip of the bill to the end of the train, is in fine birds as much as $7\frac{1}{2}$ feet.

The train of the Peacock begins to grow about February, and is lost again by August.

The Burmese Peafowl occurs over the whole Province in suitable localities. It is very capricious in its choice, being very abundant in some spots and entirely absent from others which seem equally suited to it.

It extends north as far as Chittagong, east through Siam to Cochin China (where Dr. Tiraud says that it is very abundant), and south down the Malay peninsula, where Lieut. Kelham observed it at Perak. It reappears in Java; and it has been asserted that it occurs in Sumatra and Borneo; but probably this statement is incorrect.

The Peafowl inhabits certain spots and tracts of jungle, which it seldom leaves. Usually their haunts are in thick forest where there is a good undergrowth of elephant-grass and abundance of water in the immediate vicinity. Some years ago they were excessively abundant in the Tharawaddy District, and (a very unusual thing with this shy bird) they used to come in the early mornings onto my newly made road and strut about. In Burmah it is almost impossible to shoot them in the daytime, owing to their shyness, and the best way to secure a specimen is to get a native to watch them going to roost, and then to proceed to the trees in the early morning before sunrise; by this means one or two birds may be obtained. The Peahen, the natives informed me, lays about March; I have never been able to find a nest.

P. nigripennis is allied to *P. cristatus*; but its native habitat is unknown; it may be recognized by the scapulars and wing-coverts being black, the feathers narrowly edged with green.

Genus ARGUSIANUS, *Rafin.*

672. ARGUSIANUS ARGUS.

THE ARGUS PHEASANT.

Phasianus argus, *Linn. Syst. Nat.* i. p. 272. *Argusianus giganteus*, *Bl. B. Burm.* p. 148. *Argus giganteus*, *Elliot, Mon. Phas.* i. pl. 11; *Hume & Dav. S. F.* vi. p. 427; *Hume, S. F.* viii. p. 110; *Hume & Marsh. Game Birds*, i. p. 99, pl. *Argusa giganteus*, *Kelham, Ibis*, 1881, p. 530.

Description.—The male of this magnificent species is not likely to be confounded with any other Pheasant found in the Province or adjoining regions. It may be recognized by its naked head, its enormous tail, the

central feathers of which measure upwards of four feet in length, and by the immense development of the tertiary feathers of the wing, which exceed the primaries in length by more than one foot.

The female differs from the male not only in being of comparatively dull plumage, but in wanting the lengthened tail-feathers and tertiaries. Like the male, however, she has the chin and throat, the sides of the head and the front of the neck naked. With birds so easily recognized, it seems quite unnecessary to give even a short description of the plumage.

The male has the legs and feet bright red, sometimes even vermilion-red; the female has them of a paler and duller red, sometimes a litharge-red; the bill and claws are white, slightly tinged with blue; the cere in the male the same colour as the bill, in the female pale brown; irides wood-brown to dark brown; the facial skin dull pale indigo to dark plumbeous blue. (*Davison.*)

Male: length about 70 inches, tail about 50, wing to end of primaries 18, tarsus 4·7, bill from gape up to 2. *Female*: length about 30, tail 12, wing 12, tarsus 3·6, bill from gape up to 1·7.

The Argus Pheasant occurs in the extreme south of Tenasserim, where Mr. Davison observed it in the forests about Malewoon and Bankasoon and about the higher portions of the Pakchan.

It extends down the Malay peninsula, and is found in Sumatra; and it is also said to occur in Siam.

I gather the following from the interesting account of these birds given by Mr. Davison, probably the only European who has observed them in a state of nature. They are confined entirely to the evergreen forests. Both the males and females live quite solitarily; and even at the breeding-season the two sexes are not usually found together. The males have a peculiar habit of selecting a piece of ground some six or eight yards square, thoroughly cleaning it from all vegetation and rubbish, and taking up their quarters on it during the day, leaving it only in the mornings and evenings to search for food. On this ground they probably dance and strut. Their food consists of fallen fruit, ants, slugs and insects of various kinds. The female is said to have no regular breeding-season, but to lay at all times except in the depth of the rains. The call of both sexes is very loud, and can be heard an immense distance.

Genus POLYPLECTRON, *Temm.*

673. POLYPLECTRON THIBETANUM.

THE GREY PEACOCK PHEASANT.

Pavo tibetanus, *Gm. Syst. Nat.* i. p. 731. **Polyplectron chinquis**, *Temm. Fig. et Gall.* ii. p. 363, iii. p. 675; *Bl. & Wald. B. Burm.* p. 148; *Inglis & Hume, S. F.* v. p. 40. **Polyplectron thibetanus**, *Elliot, Mon. Phas.* i. pl. 6; *Hume & Dav. S. F.* vi. pp. 432, 521; *Hume, S. F.* viii. p. 110; *Hume & Marsh. Game Birds*, i. p. 105, pl.; *Bingham, S. F.* ix. p. 195.

Description.—*Male.* Crown of head with the feathers thick-set and somewhat long, but not forming a conspicuous crest; whole head and neck greyish brown stippled with brown; lower plumage pale ochraceous barred with brown; whole upper plumage, wings and tail dark brown, minutely speckled all over with greyish white; the feathers of the back, scapulars, tertiaries and wing-coverts tipped with pale buff, and each having near the tip a large roundish violet-blue spot, tinged with a coppery gloss next the buff tip; each tail-feather with a large oval metallic-green patch on each web, surrounded by a blackish and then by a buff ring.

The *female* is similar in general appearance to the male; but the spots on the back and upper plumage are dull, and those on the tail are very small and inconspicuous; the spots on the tail-coverts are altogether absent.

In the *male* the legs and feet were blackish, the claws black; upper mandible and tip of lower mandible black, rest of lower mandible and facial skin pale yellow; irides white. The *female* had the legs and feet very dark plumbeous; upper mandible dark horny brown, paler on cere; lower mandible pale brown; irides deep grey; facial skin pale dingy fleshy yellow. (*Davison.*)

An allied species is *P. bicalcaratum*, which is said to have occurred at Mergui. Mr. Blyth, however, does not include it in his list of Burmese birds; and Mr. Davison does not appear to have met with it in Tenasserim. I shall therefore not include it in my work, but merely indicate it here. It is about the same size and form as *P. chinquis*; but it may be recognized by the male having a well-defined sharp-pointed crest of narrow bluish feathers, the upper plumage of a clear buff spotted with black, and the ocelli green, not violet-blue. The female is similar to the male in general colour; but the ocelli on the upper plumage are blackish, without gloss, and those on the tail are very small.

The Grey Peacock-Pheasant is found abundantly in Arrakan. I have never procured it in any part of Pegu, nor heard of any one having done so—which is rather strange, for the Pegu hills seem well fitted for it. In

Tenasserim Mr. Davison observed it on Mooleyit mountain; and Mr. Hume subsequently received a specimen from the foot of Nwalabo mountain. Capt. Bingham shot it in the Sinzaway Forest Reserve near Pahpoon; and he states that it occurs in the Thoungyeen valley.

To the north it extends through the Indo-Burmese countries to the hill-tracts of Eastern Bengal and to the Bhootan Doars. To the west it is found in Siam; but Dr. Tiraud does not record it from Cochin China. It is not known to occur in any portion of the Malay peninsula; nor, in fact, has it been procured south of Tavoy.

This Peacock Pheasant appears to frequent only the thickest forests, and chiefly those which grow on hilly or broken ground. It is extremely shy, and difficult to shoot. The cry of this bird is said by Mr. Davison to resemble the words *qua-qua-qua* frequently repeated.

I have recently described a Peacock Pheasant from Bhamo under the name of *P. helenæ* (Ibis, 1883, p. 136, pl. v.). It may possibly be found in Arrakan or some other portion of Burmah. It differs from *P. tibetanum* in having the ocelli of the upper plumage violet, not surrounded by a buff annular ring, but bounded above and below by a white band; the spots on the tail are deep violet, not metallic green.

Subfamily PHASIANINÆ.

Genus EUPLOCAMUS, Temm.

674. EUPLOCAMUS LINEATUS.

THE LINEATED SILVER PHEASANT.

Phasianus lineatus, Lath. in Vig. P. Z. S. 1831, p. 24. *Euplocamus lineatus*, Elliot, Mon. Phas. ii. pl. 23 (part.); Hume, Nests and Eggs, p. 525; id. S. F. iii. p. 165; Anders. Yunnan Exped. p. 669 (part.); Hume & Dav. S. F. vi. p. 436; Hume, S. F. viii. p. 110; Hume & Marsh. Game Birds, i. p. 205, pl.; Bingham, S. F. ix. p. 195; Oates, S. F. x. p. 236. *Nycthemerus lineatus*, Bl. & Wald. B. Burm. p. 149. *Gennæus lineatus*, Oates, S. F. v. p. 164.

Description.—*Male.* Forehead, crown, crest, chin, throat and the whole lower plumage black; the sides of the breast and of the body streaked with white; the forehead and feathers above the red facial skin stippled with white dots; sides of the head and neck, the hind neck, the whole upper plumage and wing-coverts black, finely and closely vermiculated with white; wings and tail the same, but the wavy bars of white broader and not so close; the central pair of tail-feathers almost entirely white on

the inner webs. Younger males have more white streaks on the lower plumage, these extending to the whole breast and abdomen.

The *female* has the forehead, crown and crest olive-brown tinged with rufous; chin and throat grey; sides and back of the neck olive-brown streaked with white; front of the neck pale chestnut with white streaks; the remaining lower plumage rich chestnut streaked with white; base of the hind neck and the back olive-brown, with white arrowhead-shaped marks; wings, coverts, lower back, rump and the shorter upper tail-coverts olive-brown, the feathers edged paler; the longer upper tail-coverts yellowish white barred with black; the six outer pairs of tail-feathers blackish, broadly barred with white, each of these white bars having another black bar within it, and between the white bars marks of chestnut; the next pair similar, but the terminal half of the inner web yellowish vermiculated with black; central pair wholly yellowish white on the inner web, and the outer web vermiculated with black.

The *chickens* have the crown of the head fulvous, albescent on the forehead; there is a stripe from the base of the upper mandible to the eye, also a black line from the posterior corner of the eye passing under the ear-coverts and terminating at the back of the head; the whole lower surface is white with a tinge of fulvous; upper neck, back and rump black; two conspicuous fulvous-white lines run from the shoulder to the root of the tail along the sides of the body, one on either side; quills brown, much freckled with fulvous, and the greater coverts largely tipped with white.

Male: iris reddish hazel; bill green, turning to dusky at the tip and at the base of the culmen; bare skin of the head rich crimson; legs plumbeous brown; claws pale horn; spur dark brown.

Female: legs dusky fleshy; claws pinkish horn; bill pale greenish, the base of the culmen blackish; eyelids plumbeous; irides bright reddish brown.

Male: length 27 inches, wing 9·3, tail 12·5, tarsus 3·2, bill from gape 1·35. *Female*: length 20 inches, wing 8·5, tail 7·5, tarsus 3, bill from gape 1·3.

The Lineated Silver Pheasant occurs throughout Pegu and Tenasserim as far south as Tavoy. On the eastern slopes of the Arrakan hills, which are properly in Pegu, the next species occurs; but I am not sure whether the two may not be found together in this locality. Capt. Wardlaw Ramsay procured it on the Tonghoo hills, east of the town of Tonghoo.

Eastwards it extends into Siam, and northwards up the Irrawaddy valley into Independent Burmah as far as Bhamo, but how much further north is not known.

This Pheasant occurs abundantly wherever the ground is hilly or broken, and it is most numerous on the higher and wilder parts of the hills. It keeps to dense cover, seldom showing itself, runs with

great speed, and takes wing unwillingly. At the breeding-season the male makes a curious drumming sound with its wings, a sort of challenge, I imagine, to other cocks. The breeding-season commences in March, and is over by the end of April. The nest is merely a hollow in the ground under a shrub or at the foot of a tree, lined with a few dead leaves. The eggs, which are seldom more than seven in number, are of a pale buff colour.

675. EUPLOCAMUS CUVIERI.

THE ARRAKAN SILVER PHEASANT.

Lophophorus cuvieri, Temm. Pl. Col. i.; Hume, S. F. iii. p. 166, note. **Nycthemerus cuvieri**, Bl. B. Burm. p. 149. **Euplocamus cuvieri**, Oates, S. F. iii. p. 343; Hume, S. F. viii. p. 110; Hume & Marsh. Game Birds, i. p. 201, pl.; Sanderson, S. F. viii. p. 493.

Description.—*Male.* Like the male of *E. lineatus*, but with no white streaks on the lower plumage; the breast is strongly tinged with deep blue; a tinge of blue runs all through the upper plumage; and the feathers of the rump and upper tail-coverts have broad white margins; the vermiculations on the upper plumage are not so frequent nor so white; and there is much less white on the tail.

The *female* is also like the female of *E. lineatus* in general appearance, but differs in some important particulars. All the feathers of the upper plumage are conspicuously margined paler; and there are no white streaks on the sides of the neck and hind neck; the tail is dark chestnut, the four or five outer pairs of feathers without any marks whatever, the others vermiculated with black. The colour of the lower plumage is much duller, and the white streaks are inconspicuous and infrequent.

Length 25 inches, tail 11·2, wing 9·3, tarsus 3·4, bill from gape 1·6. The female has the wing 8·5 inches, the tail 8·8, the tarsus 2·8, the bill from gape 1·5.

E. horsfieldi, which is likely to occur in Arrakan, has the whole plumage glossy bluish black, only the feathers of the rump and upper tail-coverts being conspicuously margined with white. The female bears a considerable resemblance to those of *E. lineatus* and *E. cuvieri*, but has no white streaks on the lower plumage, the shafts alone being paler. The tail, with the exception of the central feathers, is black.

The Arrakan Silver Pheasant occurs over the whole of the Arrakan hills, extending, I think, quite down to the Irrawaddy river; but I have never myself procured a specimen nearer to that river than fifteen miles, at a place named Nyoungeedouk, on the road leading from Prome to Tong-

hoop. Northwards it seems to extend to Chittagong; for Mr. Sanderson writes that he is of the opinion that he saw this Pheasant in that Province.

I observed this Pheasant only two or three times, and I had no opportunity of watching its habits; it is, however, extremely unlikely that they differ in any respect from those of the preceding species.

676. EUPLOCAMUS ANDERSONI.

ANDERSON'S SILVER PHEASANT.

Euplocamus andersoni, *Elliot*, *P. Z. S.* 1871, p. 137; *Anders. Yunnan Exped.* p. 670, pl. liii.; *Elliot, Mon. Phas.* ii. pl. 22. **Euplocamus crawfurdi**, *Hume & Dav. S. F.* vi. pp. 437, 521; *Hume, S. F.* viii. p. 110; *Hume & Marsh. Game Birds*, i. p. 203, pl.

Description.—*Male.* Upper parts black, each feather having three or more white irregular lines running parallel to, and meeting towards, the edges; secondaries black, with broken irregular white lines running lengthwise with the feather; feathers of the rump like the back, but fringed with white, which overlaps the feather beneath and gives this part a beautiful silvery appearance; top of head, lengthened crest, and entire underparts very deep rich blue; tail moderately long, middle feather white, thickly covered with rather broad irregular black lines, these most numerous on the outer web and towards the base, becoming less on inner web, and disappearing entirely at the tip and on the edge of inner web; rest of tail-feathers black, with fine broken lines of white, these disappearing towards the tips; primaries dark brown, irregularly marked with white lines. (*Elliot.*)

The *female* does not appear to have been described.

The characteristic points in which typical *E. crawfurdi* differs from *E. lineatus* are, first, the much coarser and bolder character of the markings of the upper surface, which are all longitudinal, more or less parallel to the margins of the feathers, which are entirely free from the fine more or less transverse markings or mottling characteristic of *E. lineatus*; second, in the whole of the central tail-feathers, except just at the tip and the margins of the inner webs, being boldly variegated black and white, instead of, as in *E. lineatus*, almost the whole of the inner webs and the terminal half, at any rate, of the outer webs being white or sullied white, free from markings, and such markings as exist on the basal portions being fine. (*Hume.*)

Length 30 inches, tail 13·5, wing 11·5, tarsus 3·62, bill from gape 1·55. The legs and feet dark pinkish fleshy; the bill pale bluish horny; the facial skin deep crimson; the irides brown. (*Davison.*)

I have not had the opportunity of examining specimens of this Pheasant, the only portion of the plumage I have seen being the tail of a male sent me some years ago by Colonel Lowndes from Bhamo, in Independent Burmah. The female does not appear to be known.

Nothing is known regarding the habits of this Pheasant. It has been obtained in Independent Burmah on the borders of Yunnan and again at Dargwin, a police-station about eighteen miles north of Pahpoo in Tenasserim.

It seems doubtful what *Phasianus crawfurdi* (Gray, Griff. Cuv. An. Kingd. viii. p. 27) really is; and I do not think that it is to be unhesitatingly identified with the present species. The description is based on a female bird which was said to measure only fourteen inches in length: no female of this latter could possibly measure only fourteen inches in length; for even the female of *E. lineatus*, a considerably smaller bird, measures twenty inches.

677. EUPLOCAMUS VIEILLOTI.

VIEILLOT'S FIREBACK PHEASANT.

Gallophaps vieilloti, *G. R. Gray, Gen. Birds*, iii. p. 498. **Euplocamus vieilloti**, *Selat. P. Z. S.* 1863, p. 118; *Hume, S. F.* v. p. 119; *Hume & Dav. S. F.* vi. p. 438; *Hume, S. F.* viii. p. 110; *Kelham, Ibis*, 1881, p. 532. **Euplocamus ignitus**, *Elliot, Mon. Phas.* ii. pl. 26 (part.); *Bl. B. Burm.* p. 149; *Elliot, Ibis*, 1878, p. 124 (part.).

Description.—*Male.* Lower back and rump glistening fiery chestnut; remainder of the plumage metallic violet-blue, the sides of the body streaked with white; the centre of the abdomen and vent plain black; primaries brown; secondaries black: central pair of tail-feathers white; the next pair nearly all white, the basal half of the outer web being brown; the next pair black, with the end of the inner web whitish; the remaining feathers black.

The *female* has the chin and throat whitish, the whole head and neck all round, the whole of the upper plumage, the wings and tail chestnut; the front and sides of the neck streaked with white; the head, hind neck and upper back plain, all the other parts finely vermiculated with black; breast black, each feather tipped with chestnut and the margins white; upper abdomen, sides of the body and thighs black, each feather broadly margined all round with white; lower abdomen and vent white; under tail-coverts chestnut.

Legs and feet vermilion-red; claws, and in the male the spurs, whitish; the back of the tarsi in the female fleshy; in the male the entire bill is whitish or horny white and the cere brownish; in the female the upper

mandible is dark horny brown, the lower horny white; irides clear pale red; facial skin smalt-blue, bright in the male, rather duller in the female. (Davison.)

Male: Length 28 inches, tail 10, wing 12, tarsus 4·3, bill from gape 1·7. The *female*: length 23 inches, tail 7·5, wing 10, tarsus 3·5, bill from gape 1·6.

Vieillot's Fireback Pheasant occurs in the south of Tenasserim, about as far as the town of that name, and not further north.

It extends down the Malay peninsula, and is probably found in the island of Sumatra.

Mr. Davison observes:—"These birds frequent the thick evergreen forests in small parties of five or six: usually there is only one male in the party, the rest being females; but on one or two occasions I have seen two males together; sometimes the males are found quite alone. I have never heard the males crow, nor do I think that they ever do so; when alarmed both males and females have a peculiar sharp note, exceedingly like that of the large Black-backed Squirrel (*Sciurus bicolor*). The males also continually make a whirring sound with their wings, which can be well imitated by twirling rapidly between the hands a small stick, in the cleft of which a piece of stiff cloth has been transversely placed. I have often discovered the whereabouts of a flock by hearing this noise. They never come into the open, but confine themselves to the forest, feeding on berries, tender leaves, and insects and grubs of all kinds; and they are very fond of scratching about, after the manner of domestic poultry, and dusting themselves. When disturbed they run rapidly away, not in different directions, but all keeping much together; they rise at once before a dog, getting up with a great flutter, but when once well on the wing fly with a strong and rapid flight; they seldom alight again under a couple of hundred yards, and usually on the ground, when they immediately start running."

E. ignitus from Borneo is an allied species, differing in having the sides of the body pale chestnut marked with black. *E. praelatus* from Siam and Cochin China has a considerable portion of the plumage of a remarkable ash-colour or bluish grey, and the feathers of the rump are black margined with crimson. It is extremely likely to occur in the hill-ranges of North-eastern Burmah; for it has been procured in the Shan States.

E. erythrophthalmus, from the Malay peninsula, may extend up to Tenasserim. The male has the plumage black, with the rump red and the tail rich buff; the female is remarkable for possessing long spurs (like the male), and the whole plumage is more or less dark green.

Genus GALLUS, *Briss.*

678. GALLUS FERRUGINEUS.

THE COMMON JUNGLE-FOWL.

Tetrao ferrugineus, *Gm. Syst. Nat.* i. p. 761. *Gallus ferrugineus*, *Jerd. B. Ind.* ii. p. 236; *Elliot, Mon. Phas.* ii. pl. 32; *Hume, Nests and Eggs*, p. 528; *id. S. F.* iii. p. 171; *Bl. B. Burm.* p. 148; *Armstrong, S. F.* iv. p. 338; *Oates, S. F.* v. p. 164; *David et Oust. Ois. Chine*, p. 420; *Anders. Yunnan Exped.* p. 669; *Wardlaw Ramsay, Ibis*, 1877, p. 468; *Hume & Dav. S. F.* vi. p. 442; *Hume, S. F.* viii. p. 111; *Hume & Marsh. Game Birds*, i. p. 217, pl.; *Bingham, S. F.* x. p. 195; *Oates, S. F.* x. p. 236; *Kelham, Ibis*, 1882, p. 1.

Description.—*Male.* Head and neck rich golden, turning to yellow on the longer hackles which cover the back; back, lesser wing-coverts and lower plumage black; median coverts glistening maroon-chestnut; greater coverts glossy bluish black; primaries brown; secondaries brown, broadly edged with chestnut; tertiaries black; a band across the lower back connecting the median coverts rich maroon-chestnut, followed by a broad band of rich purplish brown; lower rump and upper tail-coverts rich golden; tail black, more or less glossed with green.

The *female* has the crown rufous, the shafts darker; the hackles of the neck dark brown edged with yellow; the upper plumage and wing-coverts yellowish brown mottled with black, and the shafts yellowish; primaries dark brown; secondaries dark brown, the outer webs mottled with yellowish brown; tertiaries with both webs mottled; tail dark brown, the outer webs mottled with yellowish brown; lower plumage reddish brown with paler shaft-streaks, and most of the feathers stippled with blackish.

Legs purpurescent brown; claws dark bluish horn; comb, wattles, eyelids and the bare skin of the head dull red; iris orange-red; bill dark brown, reddish towards the base, and paler at the tip of lower mandible.

Male: length 28 inches, tail 14, wing 9, tarsus 3·1, bill from gape 1·2. *Female*: length 18 inches, tail 6, wing 7, tarsus 2·5, bill from gape 1.

The Common Jungle-fowl is universally distributed over the Province, alike in the hills and plains, and is everywhere abundant; and it is met with in Karennee.

It occurs in the Indo-Burmese countries and a great part of the Indian peninsula, and it is found in Siam and Cochin China. To the south it ranges down the Malay peninsula to Sumatra. In a modified form, whether wild or semi-domesticated, it has been recorded from numerous islands of the archipelago, and even from some in the Pacific Ocean.

There is no description of jungle from which this common bird is absent; but if it has a predilection for any particular style of country, it is for

broken ground and ravines with dense vegetation. In these localities (and there are many such, especially at the foot of some of the hill-ranges) it is abundant to a degree. Considerable numbers are generally found together, the two sexes mixing freely together. In Burmah, I think Jungle-fowl are commoner near tiny villages in deep forest than elsewhere; for in the neighbourhood of these hamlets there is always a certain amount of paddy-land, a good deal of low cover and a running stream. They feed in the mornings and evenings; and during the middle of the day they remain very quiet, either on some tree or well concealed under low bushes or grass. The female commences to lay at the commencement of the hot weather, the end of February or the beginning of March. As a rule she makes no nest, but merely scrapes out a hollow at the foot of a bamboo or other bush; at times there appear to be a good many leaves under the eggs. These vary in number from six to nine; but Capt. Wardlaw Ramsay once found eleven eggs in one nest; in colour they are pale buff.

The Burmese race of the Jungle-fowl has the ear-lappet red, whereas the Indian bird has it whitish or pinkish.

Family TETRAONIDÆ.

Subfamily PERDICINÆ.

Genus FRANCOLINUS, *Steph.*

679. FRANCOLINUS CHINENSIS.

THE CHINESE FRANCOLIN.

Tetrao chinensis, *Osborn*, *Voy.* ii. p. 326. *Tetrao perlatus*, *Gmelin*, *Syst. Nat.* i. p. 758. *Francolinus phayrei*, *Blanford*, *J. A. S. B.* xii. p. 1011, xxiv. p. 480; *id.* *B. Burm.* p. 149. *Francolinus chinensis*, *Hume*, *Nests & Eggs*, p. 539; *id.* *S. F.* iii. p. 171; *Wardlaw Ramsay*, *Ibis*, 1877, p. 468; *Oates*, *S. F.* v. p. 164; *David et Oust. Ois. Chine*, p. 400; *Hume & Dav.* *S. F.* vi. p. 443; *Hume*, *S. F.* viii. p. 111; *Hume & Marsh.* *Game Birds*, ii. p. 27, pl.; *Oates*, *S. F.* x. p. 236. *Francolinus perlatus*, *Anders.* *Yunnan Exped.* p. 672.

Description.—*Male.* A broad band over the crown black, each feather edged with chestnut; a band from the bill over the eyes and ear-coverts black; the spaces between these and the coronal band chestnut; a band from the angle of the bill down the sides of the throat black; the space between these and the superciliary streaks white; chin and throat white;

the whole neck, back, breast, abdomen and sides of the body black ocellated with white, the spots tinged more or less with fulvous, especially on the sides of the body, and becoming larger as they approach the tail; under tail-coverts chestnut; rump and upper tail-coverts black barred with white; scapulars and tertiaries chestnut; coverts and wings blackish, ocellated and barred with white; tail black barred with white except at the tip.

The *female* has the chin and throat white, and the whole lower plumage barred with black; the under tail-coverts chestnut; the sides of the head fulvous, with an indication of the black cheek-stripe of the male, but with no superciliary or coronal band; the whole summit of the head brown edged with fulvous-brown; the hind neck black, barred or ocellated with white; the back brown with whitish shaft-streaks, a few cross bars and black patches in the centres of the feathers; the rump and upper tail-coverts brown, freckled and vermiculated with grey and whitish; tail blackish, barred with white at the base; the wings brown, barred with white and tinged with rufous on the tertiaries.

Iris light reddish hazel; bill dark blackish brown, paler at the tip of the upper mandible; eyelids pale greenish; legs orange; claws pale horn.

Length 13 inches, tail 3·3, wing 5·7, tarsus 1·7, bill from gape 1. The female is smaller.

The Chinese Francolin is confined in Burmah to the upper portion of the Irrawaddy valley above Prome. It has not been observed in the very similar country in the Sittang valley about Tonghoo; but further east Capt. Wardlaw Ramsay met with it in Karennee, where it was abundant.

It is found in Independent Burmah, Southern China, Siam and Cochin China.

This Francolin is abundant throughout the Thayetmyo and a portion of the Prome Districts. It frequents open places in forests, old clearings, bamboo-jungle and waste land. Seldom are more than two birds seen together; as a rule they are solitary. They cannot be said to perch, but they are continually standing on stumps and the larger branches of low trees, from which situations they utter their very peculiar cry, which Capt. Wardlaw Ramsay has clearly rendered by the term *kuk-kuk-kuich-ka-ká*. I have comparatively seldom found them in stubble; they seem to prefer grass and cover; and their food consists chiefly of grass-seeds, ants and buds. The breeding-season appears to commence in June; and the nest or hollow in which the eggs are laid is situated on a hill-side at the foot of a bamboo bush. The eggs, which are sometimes eight in number, are very pale buff.

Genus ARBORICOLA, *Hodgs.*

680. ARBORICOLA BRUNNEIPECTUS.

THE BROWN-BREASTED HILL-PARTRIDGE.

Arboricola brunneopectus, *Tick.*, *Bl. J. A. S. B.* xxiv. p. 276; *Bl. B. Burm.* p. 150; *Hume & Dav. S. F.* vi. p. 443; *Hume, S. F.* viii. p. 111; *Hume & Marsh. Game Birds*, ii. p. 87, pl.; *Bingham, S. F.* ix. p. 195; *Oates, S. F.* x. p. 236. *Arborophila brunneipectus*, *Hume, S. F.* ii. p. 449, iii. p. 174; *Wald. Ibis*, 1875, p. 459.

Description.—*Male and female.* Forehead and a broad supercilium extending to the nape fawn-colour; lores, a line above and below the eye, meeting behind and passing over the ear-coverts (expanding and joining the sides of the neck), the sides of the neck and the whole fore neck black; chin, throat, cheeks and ear-coverts fawn-colour; crown and nape olive-brown, each feather tipped with black, the spots increasing in size till the hind part of the head is quite black; the fawn-coloured supercilia join behind this black patch; back and shorter scapulars olive-brown barred with black; rump olive-brown with only a few black marks, the feathers tipped darker and barred somewhat lighter; upper tail-coverts the same but with no black spots; tail olive-brown mottled with black; primaries brown mottled with rufous at the tips; secondaries brown edged with pale chestnut; tertiaries and longer scapulars olive-brown tipped with chestnut, each feather with a large, black, oval patch near the tip; coverts rufous olive-brown marked with black in places; breast tawny brown; centre of the abdomen and vent whitish; sides of the abdomen and sides of the body tawny brown, each feather with a large, round, white spot and tipped black; under tail-coverts tawny brown barred with black.

Bill black; eyelids, patch behind the eye and skin of the throat red; iris dark brown; legs orange or lake-red; claws orange-colour.

Length 11·2 inches, tail 2·4, wing 5·3, tarsus 1·7, bill from gape 1. The female is rather smaller.

The Brown-breasted Hill-Partridge is met with in the evergreen forests on the eastern spurs of the Pegu hills; and Capt. Wardlaw Ramsay procured it on the hill-ranges east of Tonghoo. In Tenasserim it is found as far south as Tavoy. It is not known to occur outside the limits of British Burmah.

This bird and the next are equally common in densely wooded ravines and nullahs; but I never met with the two species together. They skulk in the dense undergrowth, and would seldom be seen were it not that they frequently come down to the beds of the streams to drink and bathe. It is quite impossible to have any sport with them, as they seldom rise, but,

when disturbed, usually run quietly away. I have never heard them utter any note; but they are said to have a low soft whistle. They are stated to live in small coveys; but I have never seen more than four birds together, and frequently only two.

681. ARBORICOLA CHLOROPUS.

THE GREEN-LEGGED HILL-PARTRIDGE.

Tropicoperdix chloropus, Tick., *Bl. J. A. S. B.* xxviii. p. 415. *Arboricola chloropus*, Tick. *J. A. S. B.* xxviii. p. 453; *Bl. B. Burm.* p. 150; *Hume & Dav. S. F.* vi. p. 444; *Hume, S. F.* viii. p. 111; *Hume & Marsh. Game Birds*, ii. p. 91, pl.; *Bingham, S. F.* ix. p. 195; *Oates, S. F.* x. p. 236. *Arborophila chloropus*, *Hume, S. F.* ii. p. 449. *Peloperdix chloropus*, *Hume, S. F.* iii. p. 176.

Description.—*Male and female.* Forehead and supercilia, widening posteriorly and meeting on the nape, white, each feather edged with blackish; chin, throat and sides of the head white, each feather tipped with black; the feathers at the base of the throat and end of the ear-coverts tinged with rufous; a collar round the neck, wide in front and narrow behind the nape, ferruginous, each feather tipped black; crown and nape rich brown; the back, scapulars, tertiaries, lesser wing-coverts, rump, upper tail-coverts and the breast rich brown tinged with fulvous, irregularly and closely barred with blackish; primaries dark brown, freckled with fulvous on the outer webs; greater coverts and secondaries brown, freckled and marked with fulvous and pale rufous; tail rufous-brown, with freckles and broken bars of black; upper abdomen ferruginous; lower abdomen, vent and under tail-coverts buffy white; sides of the body pale ferruginous, with bold wavy bars of black; under wing-coverts chiefly pure white.

Iris dark hazel-brown; bill dusky red at base, the remainder greenish; mouth flesh-colour; eyelids and orbital skin purplish; legs greenish; claws yellow.

Length 11·5 inches, tail 3, wing 6, tarsus 1·7, bill from gape ·9. The female is rather smaller.

The Green-legged Hill-Partridge occurs in the evergreen forests of the eastern slopes of the Pegu hills; also in Tenasserim from the extreme north down to Tavoy, and probably further south still.

Dr. Tiraud records it from Cochin China, the only locality out of British Burmah where it is as yet known to occur.

I found this Partridge on the Pegu hills only in the densest and greenest vegetation. Mr. Davison notes that in Tenasserim it is met with in thin tree-jungle. Its habits are precisely similar to those of the last.

Phaenicoperdix chloropus, given by Mr. Gray from Moulmein (Hand-list, ii. p. 269), is probably the same species. I have been unable to detect in the British-Museum collection the specimen referred to by Mr. Gray.

682. ARBORICOLA INTERMEDIA.

THE ARRAKAN HILL-PARTRIDGE.

Arboricola intermedia, *Bl. J. A. S. B.* xxiv. p. 277; *Hume, S. F.* viii. p. 111; *Hume & Marsh. Game Birds*, ii. p. 85, pl. *Arborophila intermedia*, *Hume, S. F.* ii. p. 450; *Oates, S. F.* iii. p. 344.

Description.—*Male and female.* Throat and fore neck black; below this a rufous patch; breast and upper abdomen dark grey; ear-coverts, cheeks, sides of the neck and feathers under the eye black, the bases of the feathers rufous and showing up; front of the head as far back as the eyes pale grey; remainder of the head and nape hair-brown, streaked with black; these streaks increasing in size and on the upper neck becoming large drops, above which are narrow crescentic marks of pale buff; lores and a broad supercilium reaching to the back of the head greyish white, each feather with a central black streak; back, rump and upper tail-coverts glossy olive-brown edged darker, and all the feathers except those on the back with a small lanceolate spot of black; sides of the body chestnut, each feather with a large grey patch, inside of which there is a long and narrow white streak; the lower abdomen greyish white; flanks and thigh-coverts pale buff, with large black spots; under tail-coverts black at base, white at tip; tail olive-brown mottled with black and the outer feathers tipped with white; primaries brown, narrowly edged and tipped with pale buff; secondaries with broader edges and tips; tertiaries, scapulars and wing-coverts a mixture of chestnut, fulvous and black, the latter colour being in the form of large oval spots near the tips.

Length 11·5 inches, tail 3, wing 5·5, tarsus 1·5, bill from gape 1·1. There does not appear to be much difference in size between the sexes.

The Arrakan Hill-Partridge is confined in Burmah, so far as is at present known, to the Arrakan hills. All the specimens I have seen were procured between Nyoungyeedouk and Nyoungyo, on the road leading from Prome to Tonghoop.

Colonel Godwin-Austen procured it in Cachar and the Naga hills.

This species is closely allied to the next, but may be distinguished by the throat and fore neck being black.

683. ARBORICOLA RUFOGULARIS.

THE RED-THROATED HILL-PARTRIDGE.

Arboricola rufogularis, *Bl. J. A. S. B.* xviii. p. 819; *Jerd. B. Ind.* ii. p. 578; *Bl. B. Burm.* p. 150; *Hume, S. F.* v. p. 114; *Hume & Dav. S. F.* vi. p. 444; *Hume, S. F.* viii. p. 111; *Hume & Marsh. Game Birds*, ii. p. 75, pl.; *Scully, S. F.* viii. p. 349. *Arborophila rufogularis*, *Hume, S. F.* ii. p. 450. *Arboricola tickelli*, *Hume, in Hume & Marsh. Game Birds*, ii. p. 78, note.

Description.—*Male and female.* Very similar to *A. intermedia*. The throat, fore neck and sides of the neck, instead of being black, are rufous spotted with black; and the rufous of the fore neck is divided from the grey of the breast by a black band.

Legs and feet pale pinky red; bill horny black; irides deep brown; orbital skin bright red. (*Davison*.)

Length 11 inches, tail 3, wing 5.5, tarsus 1.5, bill from gape 1.1. The female is rather smaller.

The Tenasserim race of this Partridge is said by Mr. Hume to differ from the Himalayan bird in constantly wanting the black band, which in this latter separates the rufous of the fore neck from the grey of the breast. In some Himalayan birds, however, according to the same authority, this same black line, although indicated, is imperfect; and I therefore do not think this character sufficient to allow the Tenasserim to take specific rank as a distinct species. The difference between the Himalayan and Arrakan Partridges is, in my opinion, of far greater stability and importance, and entitles the two to be considered specifically distinct.

The Red-throated Hill-Partridge was procured by Mr. Davison on the higher slopes of Mooleyit mountain in Tenasserim, where it appears to be very abundant. Colonel Tickell, many years ago, also obtained it at the same locality.

It is found along the Himalayas from Assam to Kumaon. It will probably be found on the mountains of Independent Burmah and Karennee.

This Partridge appears to have the usual habits of the Hill-Partridges. These birds, judging from *A. atrogularis*, make their nests, as might be expected, on the ground, and lay about four eggs, which are white.

A. charltoni is said to have occurred in South Tenasserim; but on what authority I do not know. Mr. Blyth does not include it in his Catalogue of Burmese birds; and in the absence of any definite evidence in support of its occurrence in Burmah, I exclude it from this work. It is closely allied to *A. chloropus*, but has the legs red, not green; it also differs in having the back mottled and freckled, not barred conspicuously, with brown, and the shafts of this part are buff-coloured; the chin and throat are partially surrounded by a broken black band.

Genus CALOPERDIX, *Bl.*

684. CALOPERDIX OCULEA.

THE FERRUGINOUS WOOD-PARTRIDGE.

Perdix oculea, *Temm. Pig. et Gall.* iii. *Ind.* p. 732. *Tetrao ocellatus*, *Raffl. Trans. Linn. Soc.* xiii. p. 322. *Caloperdix oculea*, *Salvad. Ucc. Born.* p. 310; *Hume & Dav. S. F.* vi. p. 449; *Hume & Marsh. Game Birds*, ii. p. 101, pl.; *Hume, S. F.* viii. p. 111. *Caloperdix ocellata*, *Bl. B. Burm.* p. 151.

Description.—*Male and female.* The whole head, neck, breast and abdomen chestnut, darkest on the crown and palest on the throat; a streak over the eye paler chestnut than the other parts; tips of the ear-coverts black; lower abdomen and vent ashy white; base of the neck above, the back, scapulars, sides of the breast and of the body black, each feather with a subterminal white bar; lower back and rump black, each feather with a central oval spot of chestnut; upper tail-coverts black, each feather with an irregular V-shaped mark of chestnut; flanks rich chestnut, with oval black drops; thighs plain chestnut; under tail-coverts mixed chestnut and black, the longer ones black tipped with fulvous-white; tail brownish black, the two centre pairs of feathers irregularly marked with zigzag lines of pale fulvous; primaries plain brown, all but the first three tipped with fulvous; secondaries brown, edged on the outer web with fulvous, the edging increasing in extent till it occupies the whole of the web on the inner secondaries; tertiaries and coverts liver-brown, each feather with a black drop near the tip, and the coverts narrowly edged with rufous; under wing-coverts brown.

Legs and feet pale dirty green; bill black; irides deep brown. (*Davison.*)

Length 11 inches, tail 2·5, wing 5·8, tarsus 1·8, bill from gape 1. The female appears to be of the same size.

The Ferruginous Wood-Partridge has been met with in Tenasserim south of Mergui. At Malewoon and Bankasoon it appears to be tolerably abundant; for my men procured one specimen, which they were not likely to have done had the bird been rare.

It is found throughout the Malay peninsula and Sumatra, and probably also in Borneo.

Nothing is known of this species. The natives appear to snare them easily; but they seem difficult to shoot.

Subfamily ROLLULINÆ.

Genus ROLLULUS, *Bonn.*

685. ROLLULUS ROULOUL.

THE RED-CRESTED WOOD-PARTRIDGE.

Phasianus rouloul, *Scop. Del. Fl. et Faun. Insul.* ii. p. 93. *Tetrao viridis*, *Gm. Syst. Nat.* i. p. 761. *Columba cristata*, *Gm. Syst. Nat.* i. p. 774. *Perdix coronata*, *Lath. Suppl. Ind. Orn.* p. lxii. *Rollulus rouloul*, *Wald. Ibis*, 1872, p. 382; *Salvad. Ucc. Born.* p. 308; *Hume & Dav. S. F.* vi. p. 448; *Hume, S. F.* viii. p. 111; *Hume & Marsh. Game Birds*, ii. p. 103, pl. *Rollulus cristatus*, *Bl. & Wald. B. Burm.* p. 151.

Description.—*Male.* A long thick crest springing from the nape and hinder part of the crown maroon; a band in front and at the base of the crest white; remainder of the head and neck black; the whole lower plumage, the sides of the breast and the lesser coverts bluish black; back, rump and upper tail-coverts glossy bluish green; tail black; median and greater coverts, tertiaries and secondaries dark brown, more or less freckled with rufous-brown on the outer webs; outer webs of primaries rufous freckled with brown; inner webs plain brown.

The *female* has no crest; the whole head and neck are grey, a band of dull black on the hind neck; the whole of the body-plumage green, washed with slaty on the abdomen and vent; tail slaty brown; wings and their coverts chestnut, more or less freckled with brown.

Both sexes have a few long black hairs springing from the forehead.

The male has the legs and feet and basal portion of bill scarlet-red; claws horny; rest of bill black; irides slaty grey; facial skin and edges of eyelids bright red.

The female has the legs and feet bright red; bill black; irides deep brown; facial skin and eyelids bright red. (*Davison.*)

Length 11 inches, tail 2·5, wing 5·5, tarsus 1·6, bill from gape ·8. The female is rather smaller.

The Red-crested Wood-Partridge is found in the extreme south of Tenasserim, and, according to Mr. Blyth, along the course of the Tenasserim river.

It extends down the Malay peninsula to Sumatra and Borneo, and it is also said to occur in Java. To the east it ranges into Siam, but apparently not into Cochin China.

My men procured numerous specimens of this Partridge at Malewoon; but I have never myself met with it. Apart from its beautiful form and plumage, it is remarkable for wanting the claw on the hind toe. Mr.

Davison remarks :—"This species is always found in small parties of six or eight or more, males and females, keeping to the dense forest and never venturing into the open, living on berries, seeds, tender shoots and leaves, and insects of various kinds. It does not scratch about nearly so much as the *Arboricolas*, and is much quicker and more lively in its movements, much like a Quail, running hither and thither. They rise well before a dog; but it is hard to flush them without. Their note is a soft, mellow, pleasant whistle, which is chiefly heard in the morning, but which they also utter when calling to each other after they have been separated."

An allied Partridge is *Melanoperdix nigra*, found in the Malay peninsula.

Subfamily COTURNICINÆ.

Genus COTURNIX, *Bonn.*

686. COTURNIX COMMUNIS.

THE COMMON EUROPEAN QUAIL.

Tetrao coturnix, *Linn. Syst. Nat.* i. p. 278. *Coturnix communis*, *Bonn. Tabl. Enc. Méth.* p. 217; *Jerd. B. Ind.* ii. p. 586; *Hume, Nests and Eggs*, p. 549; *Bl. B. Burm.* p. 151; *David et Oust. Ois. Chine*, p. 396; *Dresser, Birds Eur.* vii. p. 143, pl.; *Legge, Birds Ceylon*, p. 756; *Hume & Dav. S. F.* vi. p. 447; *Cripps, S. F.* vii. p. 298; *Hume, S. F.* viii. p. 111; *Scully, S. F.* viii. p. 350; *Hume & Marsh. Game Birds*, ii. p. 133, pl.; *Hume, S. F.* x. p. 236 (note).

Description.—*Male.* Feathers of the forehead, crown and nape black edged with rufous; a narrow coronal streak and a broad supercilium pale buff; upper plumage a mixture of chestnut, buff and black, with long, pointed streaks of yellowish white; a broad band down the chin and throat, expanding on the throat and running up laterally on either side the head to the ear-coverts, black; sides of the chin and head white, the ear-coverts more or less rufous; a band of white parallel to and adjoining the cross throat-band; breast rufous blotched with chestnut and black, and with the shafts whitish; lower plumage pale buff, the sides of the body dashed with chestnut and black, and with large white central streaks.

The *female* is very similar, but wants the black on the throat. The breast also is paler and more marked with black.

In both sexes the outer webs of the primaries are barred with rufous.

Bill horny brown; irides yellow-brown; legs pale fleshy. (*Jerdon*.)

Length 7 inches, tail 1·7, wing 4·3, tarsus 1, bill from gape ·6. The female is usually, but not always, larger than the male.

The plumage of this Quail varies a great deal. I have not been able to examine Burmese birds; but the above description represents a specimen in ordinary average plumage.

The Common European Quail is a rather rare visitor to Burmah, judging from the few instances in which it has been met with. Mr. Blanford procured it in Pegu; and Mr. Hume has received it from near the mouth of the Bassein Creek; Mr. Blyth states that it has been found in Arrakan and in Martaban (which now constitutes the northern portion of the Tenasserim Division); and, lastly, Capt. Wardlaw Ramsay obtained it in Karennee. In short, it is not a bird which the ordinary sportsman in Burmah may reasonably expect to shoot.

This Quail is more or less migratory, and occurs, according to season, over the greater portion of Continental Asia, not extending, however, so far south as Ceylon or Cochin China, Siam and the Malay peninsula. Mons. Taczanowski informs me that its northern limit in Siberia is Lake Baikal, and that north of this place it is replaced by *C. japonica*, a species not generally recognized, but one which, in that gentleman's opinion, is perfectly distinct, differing from *C. communis* in having the chin and throat rufous and in wanting the black on and about the throat.

Passing from Asia, the Common Quail is found in Europe except in the extreme north, and throughout Africa.

The few Quails of this species which may be met with in Burmah will be found in the cold weather, the season at which they migrate south. They frequent grain-fields, thin low grass and stubble, feeding both on grain and insects. The nest is a slight depression in the ground lined with a little grass; and the eggs, which are numerous, are yellowish or buff speckled with reddish brown. Comparatively few Common Quails remain in India to breed; and the nest is not likely to be found in Burmah.

687. COTURNIX COROMANDELICA.

THE BLACK-BREASTED QUAIL.

Tetrao coromandelicus, *Gm. Syst. Nat.* i. p. 764. *Coturnix coromandelica*, *Jerd. B. Ind.* ii. p. 588; *Hume, Nests and Eggs*, p. 550; *id. S. F.* iii. p. 178; *Bl. B. Burm.* p. 151; *Hume, S. F.* viii. p. 111; *Hame & Marsh. Game Birds*, ii. p. 151, pl.; *Oates, S. F.* x. p. 236.

Description.—*Male.* Similar in general appearance to the preceding, but with the breast black and the black lines on the throat differently disposed; centre of chin and throat black, of uniform width throughout; from the lower end of this black patch a narrow band runs up to the ear-coverts, and another from the gape, the two meeting at right angles; below the cross throat-band another broad band of white, and then another narrower black one.

The *female* is very similar to the female of the preceding.

In both sexes the outer webs of the primaries of the present species are edged with rufous, not barred as in the last; and the two species may, under all conditions of plumage, be discriminated by this character.

Irides clear to dark brown; legs and feet pale fleshy, in some greyish, in some with a yellowish tinge; bill, in the male, bluish black to dusky, paler at the base below; in the female brownish horny above, bluish horny below. (*Hume.*)

Length 7 inches, tail 1·5, wing 3·5, tarsus ·9, bill from gape ·6. The female is of about the same size.

The Black-breasted or Rain Quail is found rather commonly in northern Pegu, especially in the dry parts near Thayetmyo, but whether as a resident or a migrant I am not in a position to say. Mr. Hume states that he has received it from the Bassein district. It does not appear to be found in any part of Tenasserim; but it is probably common in Arrakan.

It occurs over the greater portion of India, and it has been met with in Chittagong; so that it will probably be found throughout the Indo-Burmese countries.

This Quail frequents grass-land covered with bushes in preference to fields and stubble. It is generally seen singly or in pairs, running quietly about, picking up grass-seeds and insects. It has a pretty call of two whistling notes. It is not unlikely to be found breeding in Burmah, especially on the dry ground around Thayetmyo. In India it breeds during the rains, depositing as many as nine eggs in a small hollow in the ground; they are yellowish white or buff, speckled and otherwise marked with black, purple, or brown.

Genus EXCALFACTORIA, Bonap.

688. EXCALFACTORIA CHINENSIS.

THE BLUE-BREASTED QUAIL.

Tetrao chinensis, Linn. *Syst. Nat.* i. p. 277. **Excalfactoria chinensis**, Jerd. *B. Ind.* ii. p. 591; *Hume, Nests and Eggs*, p. 553; *Salvad. Ucc. Born.* p. 311; *Oates, S. F.* iii. p. 345; *Wald. Trans. Zool. Soc.* ix. p. 224; *Bl. B. Burm.* p. 151; *David et Oust. Ois. Chine*, p. 397; *Hume & Dav. S. F.* vi. p. 447; *Hume, S. F.* viii. p. 111; *Oates, S. F.* viii. p. 167; *Hume & Marsh. Game Birds*, ii. p. 161, pl.; *Bingham, S. F.* ix. p. 196; *Oates, S. F.* x. p. 236. **Coturnix chinensis**, Legge, *Birds Ceylon*, p. 755.

Description.—*Male.* Upper plumage, wing-coverts and tertiaries olive-brown, marked with black and pale rufous, and most of the feathers with pale shaft-streaks; primaries and secondaries plain brown; chin, throat and cheeks black; a broad moustachial stripe from the gape white; a broad collar below the black of the throat white, succeeded by a narrow band of black; a narrow white line from the nostrils to the eye; forehead, feathers round the eye, ear-coverts, breast, sides of the neck and of the body slaty blue; abdomen, vent and tail chestnut.

The *female* has the upper plumage similar to the male; the chin and throat are white; a distinct large supercilium and a band from the gape down the cheeks, expanding and surrounding the throat, rufous; sides of the head pale rufous speckled with black; lower plumage pale buff, all but the centre of the abdomen barred with black.

Iris red; bill bluish black, lighter at the gape; eyelids plumbeous; legs bright yellow; claws horn-colour.

Length 5·7 inches, tail 1, wing 2·8, tarsus ·8, bill from gape ·5. The female is of about the same size as the male; but both sexes vary much in size.

The Blue-breasted Quail is generally distributed over Burmah, but is nowhere apparently very common, except in Southern Pegu, at which part of the Province it arrives in May in large numbers. Some birds may possibly stay in the country all the year round.

It is found over many portions of Eastern India and Ceylon, Bengal, Assam, Southern China, Cochin China, the Malay peninsula, Sumatra, Java and Borneo; in a modified form it appears to extend to Celebes, the Philippine Islands, New Guinea and Australia.

This lovely little Quail is very abundant from May to August and September in the lower and more swampy portions of Pegu, such as the plains between the Pegu and the Sittang rivers. I do not remember to have ever shot it in the dry weather. It arrives in May; and at the first it may be

found in small coveys, the males separate from the females. About June these Quails commence to breed; and then they are found only singly or in pairs. They are difficult to flush; but when they rise they fly well, just skimming over the tops of the grass; it is almost impossible to make them rise a second time. The female constructs a nest which is merely a pad of grass either on the ground or in a clump of grass. I found a nest in the latter situation at Myitkyo in July, containing five eggs; they were olive-brown speckled with reddish brown.

Family TURNICIDÆ.

Genus TURNIX, *Bonn.*

689. TURNIX MACULOSA.

BLANFORD'S BUTTON-QUAIL.

Hemipodius maculosus, *Temm. Fig. et Gall.* iii. p. 631. *Turnix maculatus*, *Vieill. Nouv. Dict. d'Hist. Nat.* xxxv. p. 47; *David et Oust. Ois. Chine*, p. 398. *Turnix blanfordii*, *Bl. J. A. S. B.* xxxii. p. 80; *Bl. & Wald. B. Burm.* p. 151. *Turnix maculosa*, *Hume, S. F.* ii. p. 281, iii. p. 179; *Hume & Dav. S. F.* vi. p. 452; *Hume, S. F.* viii. p. 111; *Hume & Marsh. Game Birds*, ii. p. 183, pl.; *Bingham, S. F.* ix. p. 196; *Oates, S. F.* x. p. 236.

Description.—*Male and female.* Upper plumage rufous, black and yellow, the first two preponderating, and the yellow not disposed in streaks but rather in oval drops; wing-coverts yellowish buff with large black spots; the hind neck and upper back frequently all rufous, forming a broad collar; crown of head blackish, with a pale rufous mesial line; sides of the head buff barred with black; chin and throat buffy white; breast, sides of the body, vent, flanks and under tail-coverts ferruginous; the sides of the breast and the sides of the body with large spots of black, which are either round, oval or lunate.

The disposition of the colours of the upper plumage varies exceedingly; but this Quail may be said to be characterized by the absence of the conspicuous yellow streaks so apparent in the other species.

Legs and claws yellow; upper mandible dark brown; lower mandible and gape pale brown tinged with yellow; iris white.

Length 6·5 inches, tail 1·6, wing 3·5, tarsus ·9, bill from gape ·75. The female is much larger, the wing reaching to nearly 4 inches in length.

T. joudera is an allied species inhabiting India. It merely differs from the present in being smaller, sex for sex; the plumage of both is identical. The female *T. joudera* would appear to be very much the same size as the male *T. maculosa*; and consequently unsexed birds of the two species could not be separated from each other with certainty. I have not been able to examine a large series of the Indian race, and I follow Mr. Hume in keeping it distinct.

Blanford's Button-Quail occurs throughout the whole Province, and is a constant resident. Capt. Wardlaw Ramsay procured it in Karennee.

It is found throughout China, extending into Eastern Siberia, and will probably be met with in Independent Burmah and also in Siam; for Dr. Tiraud records it from Cochin China.

This Quail is almost invariably found about gardens in the jungle, singly or in pairs. I have shot it also in bamboo-jungle where there was an undergrowth of grass. It is less common on the hills than in the plains. On the whole this is perhaps the most abundant and universally distributed of all the Quails of Burmah; but nowhere will enough be found together to furnish sport. It is hard to flush, flies only a few yards, and can never again be discovered. I have not been able to find its nest.

690. TURNIX DUSSUMIERI.

THE LITTLE BUTTON-QUAIL.

Hemipodius dussumieri, Temm. Pl. Col. 454. fig. 2. *Hemipodius sykesii*, Smith, Ill. S. Afr. Zool., Aves, sub tab. xvi. *Turnix sykesii*, Jerd. B. Ind. ii. p. 600. *Turnix dussumieri*, Bl. Ibis, 1867, p. 161; Hume, Nests and Eggs, p. 556; David et Oust. Ois. Chine, p. 397; Hume, S. F. viii. p. 111; Hume & Marsh. Game Birds, ii. p. 193, pl.; Oates, S. F. x. p. 237.

Description.—*Female*. Upper plumage mingled rufous, yellow and black, the first two preponderating and the yellow disposed in broad streaks; hind neck and upper back almost entirely rufous, forming a sort of broad collar; a narrow coronal streak yellowish; sides of the head yellow barred with black; chin and throat white; centre of the breast plain rufous; sides of the neck and breast streaked and spotted with black and broadly streaked with rufous; remainder of lower plumage pale buff.

In the *male*, according to Mr. Hume, there is scarcely any rufous in the plumage. I have examined a large series of this Quail, the specimens all unsexed it is true; but I could not discover any difference of coloration to

lead one to suppose that the sexes differ. Mr. Hume, however, is doubtless correct*.

The legs and feet vary from pale fleshy white to light lead-colour; the bills from leaden white to lavender or plumbeous; the irides are light yellow to straw-white. (*Hume.*)

Length 5·5 inches, tail 1·2, wing 3, tarsus ·8, bill from gape ·55. The female is rather larger.

I procured a pair of the Little Button-Quail near the town of Pegu. It seems to be rare, for I only met with it on that one occasion. These two specimens agree well with others from India. It has not yet been obtained in any other part of Burmah.

It is spread over nearly the whole of the peninsula of India, and it will probably be found in suitable localities in the tract of country lying between India and British Burmah. Mr. Swinhoe found it abundant in the island of Formosa.

This species appears to frequent thick herbage and the outskirts of gardens and brushwood; it is found in pairs and not in coveys. In India it breeds in the rains, laying four eggs in a depression in the ground; they are yellowish, marked minutely all over with brown of various shades.

691. TURNIX PLUMBIPES.

THE MALAY BUSTARD QUAIL.

Hemipodius plumbipes, *Hodgs. Beng. Sport. Mag.* ix. p. 345. *Turnix plumbipes*, *Hume, Nests and Eggs*, p. 554; *Bl. & Wald. B. Burm.* p. 152; *Oates, S. F.* v. p. 164; *Anders. Yunnan Exped.* p. 673; *Hume & Dav. S. F.* vi. p. 450; *Hume, S. F.* viii. p. 111; *Scully, S. F.* viii. p. 350; *Hume & Marsh. Game Birds*, ii. p. 177, pl.; *Oates, S. F.* x. p. 236. *Turnix ocellatus* (*Scop.*), *Jerd. B. Ind.* ii. p. 597. *Turnix pugnax* (*Temm.*), *Hume, S. F.* iii. p. 178.

Description.—*Male.* Plumage above a mixture of rufous and black with pale yellow streaks; below rufescent, turning to chestnut on the flanks and under tail-coverts, the fore neck, breast and sides of the body lunated with black.

The *female* is much larger and also darker above; the crown and sides of the head, the sides and back of the neck are spotted with white; the chin, throat and breast black; the sides of the breast and body lunated with black.

* But it may be well to note that Mr. Swinhoe (*P. Z. S.* 1871, p. 401) states that the females of this species that he procured in Formosa were similar in plumage to the males but larger.

The legs, feet and claws are slaty or leaden blue or plumbeous, the claws often paler; the bill varies through the same shades and is often, not always, tinged brownish on the culmen or even on all but the basal portions of the upper mandible; the irides are pearly, ashy or dirty white; eyelids plumbeous grey. (*Hume.*)

Length 6 inches, tail 1, wing 3·2, tarsus ·9, bill from gape ·7. The female is much larger, the wing measuring 3·5 or more.

I have very strong doubts whether the Indian race *T. taigoor* can be separated from the present one. I can myself find no character by which they can be separated with certainty. Mr. Hume, however, whose opportunities for observation have been greater than mine, states that in *T. plumbipes* the prevailing tint of the interscapular region and back is brown; in *T. taigoor* the prevailing tint of these parts is rufous, and this difference extends more or less to the head and the whole upper plumage. This character can hardly be considered a satisfactory one; but for the present I accept it and keep the two races distinct.

No definite conclusions with regard to these Quails can be arrived at without the examination of large series; and having examined only two specimens of the Javan Quail of this type, *T. pugnax*, I cannot be certain that it is identical with Burmese birds. Lord Walden some years ago asserted that the two were not quite the same, and consequently I prefer to retain the Burmese birds under Mr. Hodgson's name.

The Malay Bustard Quail is found sparingly over the whole Province and Karennee, chiefly, but not entirely, in the plains and lower hills. It occurs throughout the Indo-Burmese countries, extending into Bengal and along the Himalayas as far as the Jumna river. It is also met with in Siam, Cochin China and the Malay peninsula, and probably also in Sumatra.

It frequents gardens, land covered with grass and bushes, and roadsides; goes about singly or in pairs, and is a constant resident.

I found the nests in Pegu during August and November; they were merely depressions in the ground in gardens near a bush, lined with a little grass and a few leaves; and the eggs, in every case four in number, were buff thickly speckled with blackish.

The three Burmese species of *Turnix* may be distinguished at a glance from the Quails of the genera *Coturnix* and *Excalfactoria* by the absence of a hind toe.

The following characters will further assist in distinguishing these three species. A Quail with a black throat and breast will be female *T. plumbipes*; one with the fore neck and breast completely barred across with black will be male *T. plumbipes*.

The remaining two species, in both sexes, have the fore neck and centre of the breast immaculate rufous; and while *T. dussumieri* is of very small

size, the wing barely 3 inches in length, *T. maculosa* is of large size, the wing, even in the smallest male, not being less than 3·3 in length. The latter species may further be distinguished by the presence of large roundish black spots on the sides of the breast and body.

Order XIII. GERANOMORPHÆ.

Suborder FULICARIÆ.

Family RALLIDÆ.

Subfamily RALLINÆ.

Genus HYPOTÆNIDIA, *Reich.*

692. HYPOTÆNIDIA STRIATA.

THE BLUE-BREASTED BANDED RAIL.

Rallus striatus, *Linn. Syst. Nat.* i. p. 262; *Jerd. B. Ind.* ii. p. 726. *Hypotænidia striata*, *Wald. Trans. Zool. Soc.* viii. p. 95; *Hume, Nests and Eggs*, p. 605; *Salvad. Ucc. Born.* p. 336; *Wald. Ibis*, 1874, p. 146; *Bl. B. Burm.* p. 161; *Hume, S. F.* iii. p. 189; *Armstrong, S. F.* iv. p. 349; *Wardlaw Ramsay, Ibis*, 1877, p. 471; *Oates, S. F.* v. p. 165; *David et Oust. Ois. Chine*, p. 488; *Tweedd. P. Z. S.* 1877, p. 768; *Hume & Dav. S. F.* vi. p. 468; *Anders. Yunnan Exped.* p. 692; *Legge, Birds Ceylon*, p. 775; *Hume, S. F.* viii. p. 113; *Bingham, S. F.* ix. p. 197; *Hume & Marsh. Game Birds*, ii. p. 245, pl.; *Oates, S. F.* x. p. 242; *Kelham, Ibis*, 1882, p. 189.

Description.—*Male and female.* Forehead, crown, nape and the upper side of the neck chestnut, pure in old birds, variegated with brown in younger ones; the upper plumage, wing-coverts and tertiaries blackish brown, each feather broadly edged with olive-brown and barred with white; primaries, secondaries and tail dark brown, barred with white on both webs; chin and throat dull white; lores, cheeks, ear-coverts, sides of the neck, fore neck and breast bluish grey with a rufous tinge; sides of the abdomen and of the body, vent, under tail-coverts and under wing-coverts dark brown barred with white; centre of the abdomen dull white.

Basal half of bill rose-pink, anterior half horn-colour; iris red; legs and toes deep olive-brown; claws pale brown.

Length 10 inches, tail 1·8, wing 4·8, tarsus 1·5, bill from gape 1·6. The female is of the same size.

The Blue-breasted Banded Rail is found over the whole Province in low and marshy places. In Tenasserim Mr. Davison did not observe it south of Tavoy ; but it is a bird which is easily overlooked, and it probably occurs throughout Tenasserim.

It is met with over a considerable portion of India and Ceylon, the Indo-Burmese countries, South China, Siam, Cochin China, the Malay peninsula, Sumatra, Java, Borneo, the Philippine Islands and Celebes. The race inhabiting the Andaman Islands has been separated by Mr. Hume under the name of *H. obscuriora*.

This Rail frequents swamps, paddy-fields, thick herbage, reed-beds and other low wet localities. It seldom allows itself to be seen except when feeding, at which times it comes out of its cover rather boldly and does not exhibit much fear.

It breeds from July to October, making a small nest of grass on the ground near water, and well surrounded by thick vegetation. It lays as many as seven eggs, which are pinkish stone-colour blotched with pale purple.

Genus RALLINA, *Reich.*

693. RALLINA EURYZONOIDES.

THE BANDED RAIL.

Gallinula euryzonoides, *Lafresn. Rev. Zool.* 1845, p. 368. *Rallus zeylanicus*, *Gm. Syst. Nat.* i. p. 716. *Porzana ceylonica*, *Bl. Cat. B. Mus. As. Soc. Beng.* p. 285 ; *Jerd. B. Ind.* ii. p. 725 ; *Hume, S. F.* i. p. 440, iii. p. 188 ; *Bourdillon & Hume, S. F.* iv. p. 405 ; *Hume, S. F.* vii. p. 465. *Rallina ceylonica*, *Wald. in Bl. B. Burm.* p. 162. *Rallina euryzonoides*, *Tweedd. P. Z. S.* 1877, p. 767 ; *Legge, Birds Ceylon*, p. 772 ; *Hume, S. F.* viii. p. 113 ; *Hume & Marsh. Game Birds*, ii. p. 237, pl. ; *Oates, S. F.* x. p. 242.

Description.—*Male.* Chin and throat whitish ; with this exception the whole head, neck all round and breast chestnut ; the whole upper plumage, wings and tail rich olive-brown with a ruddy tinge on the back, rump, scapulars and tertiaries ; all the quills with white bars on the inner webs ; abdomen, vent, under tail-coverts, sides of the body and under wing-coverts broadly barred with dark brown and white.

The *female* differs in having the crown, nape and upperside of the neck of much the same colour as the back.

Iris blood-red ; base of upper mandible and the greater portion of the

lower green, remainder of the bill dark brown; eyelids grey; legs black; claws dark horn-colour.

Length about 10 inches, tail 2·2, wing 5·5, tarsus 1·75, bill from gape 1·3.

A live specimen of this Rail was captured by Colonel Horace Browne in the verandah of his house at Thayetmyo some years ago. The bird reached me alive the same day; and this is the only instance I know of the occurrence of this species in British Burmah.

It is everywhere rare and migratory, and it seems to have a great fondness for taking refuge in buildings. Little is known regarding the movements of this bird. It arrives in Ceylon in October in considerable quantities and it comes to that island in an exhausted condition, so that we may presume it has travelled a long distance. It remains in Ceylon till February. The occurrence of this Rail has been recorded from various widely separated localities in India. It is known to occur with certainty in various islands of the Philippine group; and Count Salvadori gives Java, Malacca and Singapore as localities whence specimens have been obtained.

Nothing is known about the nidification of this Rail, and very little about its habits.

694. RALLINA FASCIATA.

THE MALAY BANDED RAIL.

Rallus fasciatus, *Raffl. Trans. Linn. Soc.* xiii. p. 328. **Rallina fasciata**, *Salvad. Ucc. Born.* p. 337; *Wald. in Bl. B. Burm.* p. 162; *id. Trans. Zool. Soc.* ix. p. 231; *Hume, S. F.* iii. p. 188; *Hume & Dav. S. F.* vi. p. 467; *Hume, S. F.* viii. p. 113; *Hume & Marsh. Game Birds*, ii. p. 235, pl.

Description.—The whole head, neck all round and breast deep chestnut, rather paler on the chin and throat; back, rump, upper tail-coverts and tail ruddy brown; scapulars and tertiaries ruddy brown, with a few obsolete ferruginous bars near the tips of some of the feathers; lesser wing-coverts ruddy brown, with a ferruginous spot in the centre of each feather; the remaining coverts and all the quills brown, with rufous-white bars on both webs; abdomen, vent, sides of the body, under wing-coverts, axillaries and under tail-coverts broadly barred with black and white, the latter part tinged with ferruginous. Mr. Hume states that the sexes are alike.

Legs, feet and bare portion of tibia coral-red; bill black, dark horny blue or plumbeous blue; irides dull red, cinnabar-red or red-brown; orbital skin and gape bright vermilion. (*Davison*.)

Length about 10 inches, tail 2·3, wing 5·1, tarsus 1·7, bill from gape 1. The female is of the same size.

R. mandarina from China, which is said to be the same as *R. paykulli* from Java, is allied to this and the preceding. The sexes are alike; the crown and upper part of the neck are olive-brown like the back; the chestnut of the breast is produced well over the upper abdomen; the upper wing-coverts are barred with white, and all the primaries and secondaries are uniform brown without any white bars.

R. superciliaris (*R. telmatophila*, Hume, S. F. vii. pp. 142, 451) inhabits the Malay peninsula and may be found in Tenasserim. It is allied to *R. fasciata*, but has dark green or blackish legs, a white chin and throat, no barrings on the upper wing-coverts or quills, and the red is everywhere replaced by olive-brown. *R. canningi* from the Andamans is a beautiful allied species, with the rufous parts of the plumage of a very deep colour, approaching maroon.

The Malay Banded Rail was procured by Mr. Davison in Tenasserim about Amherst and Tavoy.

It extends down the Malay peninsula, and is found in the islands of Sumatra, Java and Borneo. It is said to range as far as the Pelew Islands in the Pacific Ocean.

Mr. Davison found this species frequenting rice-fields surrounded by low brushwood.

Genus RALLUS, *Linn.*

695. RALLUS INDICUS.

THE INDIAN WATER-RAIL.

Rallus indicus, *Bl. J. A. S. B.* xviii. p. 820; *Jerd. B. Ind.* ii. p. 726; *Hume, S. F.* iii. p. 416; *Bl. B. Burm.* p. 162; *David et Oust. Ois. Chine*, p. 489; *Legge, Birds Ceylon*, p. 778; *Hume, S. F.* viii. p. 113; *Hume & Marsh. Game Birds*, ii. p. 257, pl.

Description.—*Male and female.* The whole upper plumage from the forehead to the tail, the sides of the neck, the scapulars and tertiaries ruddy brown, each feather with a broad black streak down the centre; wing-coverts ruddy brown, some of them barred with white and with the portion of the feather above and below this bar blackish; the amount of white barring seemingly dependent on age and very variable; primaries and secondaries plain brown; a broad streak passing over the lores; the eyes and ear-coverts dark brown; a broad supercilium from the forehead

to the end of the ear-coverts plumbeous grey; chin and throat plumbeous; cheeks, fore neck, breast and centre of the abdomen plumbeous ashy, the feathers more or less fringed, according to age, with ruddy; sides of the abdomen and sides of the body, axillaries and vent blackish, barred with white; under tail-coverts white, each feather with a large black patch in the centre; under wing-coverts black margined with white.

Bill dull red, dusky on the culmen and tip; irides red-brown; legs and feet dirty pale green. (*Jerdon.*)

Length 10 inches, tail 2·2, wing 5·2, tarsus 1·6, bill from gape 1·6. The female is very slightly smaller.

The only differences which I can discover between the present species and *R. aquaticus* are the following:—In *R. indicus* there is a broad brown band covering the lores, passing through the eyes and occupying the central portion of the ear-coverts; the sides of the neck are streaked with black like the upper plumage, and the feathers of the fore neck and breast are always more or less fringed with ruddy. In *R. aquaticus* there is no streak on the side of the head, the whole of that part, together with the sides of the neck, the fore neck and breast, being a clear deep plumbeous ashy. The dimensions of the two races are about the same.

The Indian Water-Rail is said by Mr. Blyth to occur in Arrakan, and Mr. Shopland informs me that he has procured it in that Division.

It occurs in Northern India from Bengal up to Nipal, and it is recorded from Ceylon. It is probably found throughout the Indo-Burmese countries. I have examined specimens in Mr. Seeböhm's collection from various parts of China and Japan, and find them to be identical with the present species. It is said to extend into South-eastern Siberia.

The Indian Water-Rail is migratory, visiting India, and of course Burmah also, only in the cold season; but, as with other species of this family, comparatively little is known about its movements.

This bird frequents patches of grass and brushwood in marshy localities and is excessively shy, seldom showing itself, and being driven out of its cover with great difficulty.

Genus PORZANA, Vieill.

696. PORZANA BAILLONI.

BAILLON'S CRAKE.

Rallus bailloni, Vieill. *Nouv. Dict. d'Hist. Nat.* xxviii. p. 548. *Crex pygmæa*, Naum. *Naturg. Vög. Deutschl.* ix. p. 567. *Porzana pygmæa*, Jerd. *B. Ind.* ii. p. 723; Hume & Henders. *Lah. to Yark.* p. 293; Hume, *S. F.* i. p. 251; *Bl. B. Burm.* p. 161; Wald. *Trans. Zool. Soc.* ix. p. 230; David et Oust. *Ois. Chine*, p. 487. *Zapornia pygmæa*, Hume, *Nests and Eggs*, p. 603. *Ortygometra pygmæa*, Hume, *S. F.* ii. p. 301. *Porzana bailloni*, Dresser, *Birds Eur.* vii. p. 275, pl.; Legge, *Birds Ceylon*, p. 766; Hume & Dav. *S. F.* vi. p. 467; Hume, *S. F.* viii. p. 113; Scully, *S. F.* viii. p. 358; Hume & Marsh. *Game Birds*, ii. p. 203, pl.; Oates, *S. F.* x. p. 242.

Description.—Male and female. Forehead, crown, nape, back, rump, scapulars and upper tail-coverts rufous-brown, each feather broadly streaked with black down the centre, and those of the back, scapulars and rump with irregular narrow interrupted white streaks; tertiaries rufous-brown, the portion next the shaft black, the outer webs with bar-like white spots; primaries and secondaries brown, the first primary edged with white on the outer web; upper wing-coverts rufous-brown, some of the longer ones mottled with white at the tips; ear-coverts and feathers under the eye and sides of the neck rufous; lores, a broad supercilium, cheeks, fore neck and breast ashy grey; chin and throat albescent; centre of the abdomen greyish white; sides of the body rufous-grey; flanks, vent and under tail-coverts brown barred with white; under wing-coverts brown, sparingly marked with white.

Bill dark green; iris reddish; legs light green; claws greenish. (*A. Anderson, MS.*)

Length 7·5 inches, tail 2, wing 3·3, tarsus 1, bill from gape ·7. The female appears to be of the same size.

P. parva, the Little Crake of Europe, is of about the same size, but every portion of the lower plumage and sides of the head are a uniform deep plumbeous ashy in the male, dull pinkish in the female. *P. exquissita*, from China, has the upper plumage brown irregularly barred with white, and the under wing-coverts, axillaries and secondaries are pure white; it is figured in 'The Ibis,' 1875, pl. iii. No reference to this very distinct and beautiful species appears to be made by Messrs. David et Oustalet in their 'Oiseaux de la Chine.' *P. cinerea* is a species which occurs in the southern portion of the Malay peninsula.

Baillon's Crake is said by Mr. Blyth to be common in Burmah, and no doubt it is so. I have, however, been able to procure only one specimen

in the course of many years, and this was near Kyeikpadein. In Tenasserim Mr. Davison obtained it at Tavoy.

This Crake occurs over the whole of India, Ceylon and the Andamans, extending on the east to China, Japan and Eastern Siberia. It has been met with in Borneo, and will probably be found over the whole of South-eastern Asia. To the west it ranges into Europe and Africa, where it is found over the greater part of both continents.

This species is a great skulker and very rarely noticed; consequently very little is known in India regarding its movements; but it appears to be a partial migrant, visiting the plains chiefly in the cold weather.

The specimen I shot flew out of a dense field of paddy. It affects swamps and rice-fields, also pieces of water in which the vegetation is thick, and it walks over the floating leaves very gracefully, swimming at times. It breeds in India in the rains, making a nest of reeds in the thick grass near the water's surface. The eggs are said to be as many as eight, olive-brown, spotted with a darker shade of the same.

697. PORZANA MARUETTA.

THE SPOTTED CRAKE.

Rallus porzana, *Linn. Syst. Nat.* i. p. 262. ***Ortygometra maruetta***, *Leach, Syst. Cat. Mamm. & Birds Brit. Mus.* p. 34. ***Porzana maruetta***, *Jerd. B. Ind.* ii. p. 722; *Bl. B. Burm.* p. 161; *Hume & Henders. Lah. to Yark.* p. 293; *Dresser, Birds Eur.* vii. p. 267, pl.; *Hume, S. F.* viii. p. 113; *Hume & Marsh. Game Birds*, ii. p. 213, pl.

Description.—*Male and female.* The whole upper plumage and scapulars rufescent olive-brown, all the feathers with a black streak down the middle, and all, except those of the forehead, crown and nape, with white streaks or spots, irregular and unevenly distributed; the lesser and median wing-coverts olive-brown sparingly spotted with white; the greater coverts barred with white, the interspaces more or less blackish; tertiaries rufescent on the inner webs, olive-brown barred with white on the outer, the portion near the shaft more or less blackish; primaries and secondaries plain brown, the first primary broadly edged with white; tail blackish, broadly edged with rufescent olive-brown, and the central feathers irregularly marked with white near the edges; a broad supercilium ashy grey, the hinder part spotted with white; sides of the head ashy brown, the portion under the eyes and ear-coverts spotted with white; the whole side of the head occasionally spotted with white; chin and throat plain ashy grey; breast and sides of the neck rufescent brown closely spotted with white; centre of the abdomen whitish; sides of the body brown

barred with white; vent and under tail-coverts ferruginous; under wing-coverts white barred with brown.

Bill greenish yellow, orange at the base; irides red-brown; legs and feet bright yellowish green. (*Jerdon.*)

Length 8·5 inches, tail 2·1, wing 4·5, tarsus 1·3, bill from gape ·8. The female appears to be of about the same size.

The Spotted Crake is recorded from Arrakan by Mr. Blyth.

It is found throughout a great part of India, where it appears to be more or less migratory; in Central Asia from Yarkand westwards; and throughout Europe and Northern Africa.

This species seems restricted to the densest cover, reed-beds and thick paddy, and is less often seen even than the last.

698. PORZANA FUSCA.

THE RUDDY CRAKE.

Rallus fuscus, *Linn. Syst. Nat.* i. p. 262. **Porzana fusca**, *Jerd. B. Ind.* ii. p. 724; *Bl. B. Burm.* p. 161; *Hume, S. F.* iii. p. 188; *Wald. Trans. Zool. Soc.* ix. p. 230; *Legge, Birds Ceylon*, p. 769; *Hume & Marsh. Game Birds*, ii. p. 217; *Oates, S. F.* x. p. 242. **Rallina fusca**, *Hume, Nests and Eggs*, p. 604; *Salvad. Ucc. Born.* p. 338; *Anders. Yunnan Exped.* p. 691; *Hume & Dav. S. F.* vi. p. 467; *Hume, S. F.* viii. p. 113.

Description.—*Male.* The forehead as far back as the eyes, the sides of the head and neck, the fore neck, breast and upper abdomen rich ferruginous; chin and throat whitish; sides of the body and lower abdomen olivaceous; flanks, vent and under tail-coverts dark brown, irregularly and indistinctly barred with white; the whole upper plumage, wings and tail olive-brown; under wing-coverts brown edged with white.

The *female* has the ferruginous of the lower parts paler and the white of the throat extends lower down.

Iris crimson; eyelids plumbeous, the edges red; bill greenish brown; legs and toes red; hinder part of leg fuscous.

Length 8·5 inches, tail 1·75, wing 3·8, tarsus 1·4, bill from gape 1. The female is barely smaller than the male.

I have examined a considerable series of *P. erythrothorax* from China, and find that it differs from *P. fusca* merely in being larger; but this greater size is only exhibited in the wing, which varies from 4·1 to 4·6 inches in length. The tarsus, toes and bill are of the same size in the two species; and I cannot discover any difference in coloration. I have not, however, been able to examine a similarly good series of *P. fusca*, and

therefore I cannot express any decided opinion about the distinctness or identity of the two birds.

The Ruddy Crake is said by Mr. Blyth to be common in Burmah. I met with it at various places in Pegu, and should put it down as fairly common and generally distributed in that Division. In Arrakan it is probably the same. In Tenasserim, however, Mr. Davison never met with it; but it is premature to conclude that it is absent from that Division.

It is found in various parts of the Indian peninsula and Ceylon, the Indo-Burmese countries, and probably all the way down the Malay peninsula; for it is met with in Sumatra, Java, Borneo and the Philippine Islands.

This Crake is a constant resident in Burmah, and is the only one of the Crakes which can be said to be at all common. It frequents all sorts of jungle, provided there is water about; and it comes out into the open rather frequently. It breeds in Burmah; but I have not been able to find its nest. It nests in India in July and August, and its mode of nidification does not appear to differ materially from that of the other Crakes.

Genus GALLINULA, *Briss.*

699. GALLINULA CHLOROPUS.

THE MOOR-HEN.

Fulica chloropus, *Linn. Syst. Nat.* i. p. 258. **Gallinula chloropus**, *Jerd. B. Ind.* ii. p. 718; *Hume, Nests and Eggs*, p. 597; *id. S. F.* i. p. 250, iii. p. 187; *Bl. B. Burm.* p. 162; *David et Oust. Ois. Chine*, p. 485; *Anders. Yunnan Exped.* p. 692; *Dresser, Birds Eur.* vii. p. 313, pl.; *Hume & Dav. S. F.* vi. p. 466; *Legge, Birds Ceylon*, p. 781; *Hume, S. F.* viii. p. 113; *Oates, S. F.* x. p. 242.

Description.—*Male and female.* Whole head and neck dark smoky grey, darker on the top of the head; back, rump, upper tail-coverts, scapulars, tertiaries and upper wing-coverts rich rufescent olive-brown; primaries and secondaries brown, the outermost primary edged with white on the outer web; tail dark brown tinged with olive; lower plumage from the fore neck smoky grey; the feathers of the abdomen, vent and lower breast fringed with white; the sides of the body broadly streaked with white; under tail-coverts white, with the exception of a few of the central feathers, which are black; under wing-coverts blackish, some of the feathers fringed with white; edge of the wing white.

Iris red; frontal shield and basal half of the bill dull red; remainder of the bill greenish yellow; tibia and front of tarsus greenish yellow; hind

part of the tarsus and all the toes slaty green; claws horn-colour; an orange ring round the tibia, just below the feathered portion.

Length 12·5 inches, tail 2·7, wing 6·3, tarsus 1·9, bill from gape 1·1. The female is rather larger than the male.

The Common Moor-hen of Europe is found sparingly over the whole Province. In Pegu I procured it only at Boulay, near Thayetmyo; but I have reason to think it occurs elsewhere in this Division. Mr. Davison met with it at various points in Tenasserim, and Mr. Blyth records it from Arrakan.

It inhabits the whole of Southern Asia, being found in the Philippine Islands and, according to Dr. Tiraud, in Cochin China. It extends north as far as Japan. It ranges west to Europe and Africa, inhabiting nearly the whole of both continents.

This species is migratory in some measure over a large portion of its range; but in Burmah, from what I have observed, I should judge it to be resident. It frequents ponds and swamps, swimming about with ease, and being also able to walk over leaves and vegetation growing in the water. In India it breeds in the rains, making a large nest of grass on the ground on the edge of the water and laying numerous eggs, which are pale buff marked with reddish.

There are several doubtfully distinct races of this Moor-hen found in various parts of the world; they differ very slightly from the European bird, and it is hardly necessary to notice them here.

Genus ERYTHRURA, *Reich.*

700. ERYTHRURA PHÆNICURA.

THE WHITE-BREASTED WATER-HEN.

Rallus phoenicurus, *Penn. in Forst. Zool. Ind.* p. 19, pl. ix. **Gallinula phoenicura**, *Jerd. B. Ind.* ii. p. 720; *Hume, Nests and Eggs*, p. 599; *id. S. F.* ii. p. 300, iii. p. 187; *Hume & Dav. S. F.* vi. p. 466; *Newton, S. F.* vii. p. 415. **Erythra phœnicura**, *Wald. Trans. Zool. Soc.* viii. p. 94; *Salvad. Ucc. Born.* p. 340; *David et Oust. Ois. Chine*, p. 486; *Oates, S. F.* v. p. 165; *Anders. Yunnan Exped.* p. 691; *Legge, Birds Ceylon*, p. 786; *Hume, S. F.* viii. p. 113; *Bingham, S. F.* ix. p. 197; *Oates, S. F.* x. p. 242; *Kelham, Ibis*, 1882, p. 188. **Porzana phœnicura**, *Bl. B. Burm.* p. 161.

Description.—*Male and female.* Forehead, the feathers over the eye, the sides of the head, chin, throat, lower neck, the centre of the breast and abdomen white; the whole upper plumage, tail and wings deep olive-

brown; the outer web of the first primary white; sides of the breast and of the abdomen the same deep olive-brown as the upper plumage; flanks, vent and under tail-coverts chestnut; under wing-coverts smoky brown, some of the feathers edged with white.

Bill green, the frontal portion red; legs pale orange-yellow; claws brown; iris crimson; edges of the eyelids dark brown.

Length 12·5 inches, tail 2·5, wing 7·5, tarsus 2·2, bill from gape 1·5. The female is rather smaller.

The White-breasted Water-hen is extremely abundant throughout the whole Province.

It inhabits nearly the whole of the peninsula of India, Ceylon and the Andaman Islands, the Indo-Burmese countries, Southern China, Siam, Cochin China and the Malay peninsula, extending to Sumatra, Java, Banca, Borneo, Celebes and the Philippine Islands.

This, the commonest member of the family in Burmah, is universally distributed. It frequents not only swampy localities, but is perhaps more commonly found in bamboo-jungle, patches of brushwood near villages, and in the tall rank hedges so common round monasteries. It has a particularly loud unpleasant call, more like the braying of an ass than any thing else. I have very frequently found its nest in June. It is sometimes placed on the ground, but as a rule it will be found in some stunted tree about ten or fifteen feet from the ground; it is made of leaves chiefly. The eggs, generally four in number, are pale buff marked with reddish brown.

Genus *GALLICREX*, *Bl.*

701. *GALLICREX CINEREUS*.

THE WATER-COCK.

Fulica cinerea, *Gm. Syst. Nat.* i. p. 702. *Gallinula cristata*, *Lath. Ind. Orn.* ii. p. 779. *Gallicrex cristatus*, *Jerd. B. Ind.* ii. p. 716; *Salvad. Ucc. Born.* p. 340; *Bl. & Wald. B. Burm.* p. 161; *Kelham, Ibis*, 1882, p. 186. *Gallicrex cinereus*, *Hume, Nests and Eggs*, p. 596; *id. S. F.* ii. p. 300, iii. p. 187; *Wald. Trans. Zool. Soc.* ix. p. 229; *Oates, S. F.* v. p. 165; *Wardlaw Ramsay, Ibis*, 1877, p. 471; *David et Oust. Ois. Chine*, p. 484; *Hume & Dav. S. F.* vi. p. 466; *Legge, Birds Ceylon*, p. 791; *Cripps, S. F.* vii. p. 305; *Hume, S. F.* viii. p. 113; *Oates, S. F.* x. p. 242.

Description.—*Male in summer.* Crown of the head black; lores and cheeks dark brown; the whole upper neck, back and scapulars dark brown, each feather edged with grey; lower back, rump, scapulars, tertiaries and

wing-coverts brown, each feather edged with buffy white; primaries and secondaries plain brown, the first primary with the shaft and the outer web white; upper tail-coverts dark brown, edged with pale buffy white; tail brown, the outer feathers faintly edged paler; chin, throat, sides and front of the neck, breast, upper abdomen, the thigh-coverts and the whole of the sides of the body blackish, each feather distinctly edged with greyish white; lower abdomen and vent greyish white; under tail-coverts white barred with dark brown; edge of the wing white; under wing-coverts mingled white and brown.

The *male in winter* has the fleshy process on the head reduced in size or nearly obsolete.

The *female* at all seasons has merely a frontal shield, and the plumage differs from that of the male. The crown and nape are reddish brown; the whole upper plumage, scapulars, tertiaries, wing-coverts and tail dark brown broadly edged with rufous-grey; the primaries and secondaries plain brown, the first primary with the shaft and outer web dull white; the lores and feathers round the eyes rufescent; the ear-coverts and feathers under the lores brown; chin, cheeks and throat white; the whole lower plumage rufescent closely barred with brown; the edge of the wing white; the under wing-coverts mingled white and brown.

The *young bird* is very rufous, but otherwise like the female.

Iris brown (probably red in old males); eyelids plumbeous; frontal shield and base of upper mandible deep red; remainder of the bill yellow, a spot on each side of the base of the lower mandible red; frontal process or horn pinkish; legs plumbeous green; claws horn-colour.

Length 17 inches, tail 3·8, wing 8·5, tarsus 3·3, bill from gape 1·7. The female is very much smaller, the wing being about 7 and the tail 3.

The Water-cock is found over the whole of Burmah except, perhaps, in the south of Tenasserim, where Mr. Davison did not observe it.

It occurs over a considerable portion of India, Ceylon and the Andaman Islands, the Indo-Burmese countries, Southern China, Cochin China, the Malay peninsula, Java, Borneo, the Philippines, and probably Sumatra.

This bird is common in all the low swampy parts of the country. I am inclined to think that it visits Burmah only in the rains; for I have never met with it in the dry weather; but at this period it will be silent, and consequently likely to escape notice. It is generally seen in low flooded grass-land, and it feeds chiefly in the mornings and late in the evenings. It has a loud booming note, which may be heard a long distance and cannot be mistaken for that of any other bird. I have frequently found it breeding in July and August; it makes a large nest of reeds on the ground and lays five or six eggs, which are buff spotted with reddish brown.

Subfamily FULICINÆ.

Genus PORPHYRIO, *Briss.*

702. PORPHYRIO POLIOCEPHALUS.

THE INDIAN GALLINULE.

Gallinula poliocephala, *Lath. Ind. Orn. Suppl.* p. lxxviii. **Porphyrio neglectus**, *Schleg. Mus. P.-B., Ralli*, p. 53; *Hume, S. F.* i. p. 249; *id. Nests and Eggs*, p. 594; *id. S. F.* iii. p. 185. **Porphyrio poliocephalus**, *Jerd. B. Ind.* ii. p. 713; *Bl. B. Burm.* p. 161; *Butler, S. F.* iv. p. 20; *Oates, S. F.* v. p. 165; *Hume & Dav. S. F.* vi. p. 464; *Elliot, S. F.* vii. p. 22; *Cripps, S. F.* vii. p. 305; *Hume, S. F.* viii. p. 113; *Legge, Birds Ceylon*, p. 795; *Bingham, S. F.* ix. p. 197; *Oates, S. F.* x. p. 241.

Description.—*Male and female.* The feathered portions of the head and neck grey, tinged with lavender on the hind neck; the cheeks, chin and throat washed with blue; back, rump, scapulars and upper tail-coverts deep purplish blue; tail bluish brown; wing-coverts and tertiaries greenish blue; primaries and secondaries greenish blue on the outer webs, black on the inner; breast and under wing-coverts greenish blue, similar to the wings; abdomen, sides of the body, vent and thigh-coverts deep purplish blue like the back; under tail-coverts white.

Anterior half of bill dull red, basal half and the whole culmen nearly to the tip very dark blood-red; round the nostrils white; central portion of the shield deep red, the edges brighter red; iris bright red; eyelids plumbeous; legs and toes red, the joints more or less brown; claws dark horn-colour.

Length 17 inches, tail 4, wing 9·6, tarsus 3·6, bill from gape 1·5. The female is of about the same size or rather larger.

P. edwardsi from Siam and Cochin China is very likely to occur in Tenasserim; it has the back, rump, upper tail-coverts, tail and wings uniform greenish black. *P. calvus*, which inhabits the Malay peninsula, is also likely to be found in Tenasserim; it resembles *P. poliocephalus* in general appearance, but it has the occiput, sides of the face and the chin black. *P. caelestis* from China is described as having a white rump, a feature sufficient in itself to separate it from all the other known species of *Porphyrio*.

The Indian Gallinule is found over the whole of Burmah except perhaps in the southern half of Tenasserim, where Mr. Davison does not appear to have met with it.

It inhabits the whole of India and Ceylon, and is probably also distributed throughout the Indo-Burmese countries.

This Gallinule is found abundantly in all swamps and tracts of water covered with floating vegetation. In the rains its area of distribution is much extended; and it may then be found generally spread over flooded plains, provided there is dense cover in the vicinity, for this species when not feeding likes to conceal itself. I have generally met with them in considerable flocks. The breeding-season is July and August; the nest, made of grass and reeds, is placed on the ground in flooded spots amongst thick grass; and the eggs, which are sometimes as many as ten, are a pale buff richly marked with red and purple.

Genus FULICA, *Linn.*

703. FULICA ATRA.

THE COOT.

Fulica atra, *Linn. Syst. Nat.* i. p. 257; *Jerd. B. Ind.* ii. p. 715; *Hume, S. F.* i. p. 249; *id. Nests and Eggs*, p. 595; *Bl. B. Burm.* p. 162; *Wardlaw Ramsay, Ibis*, 1877, p. 472; *David et Oust. Ois. Chine*, p. 489; *Hume & Dav. S. F.* vi. p. 465; *Dresser, Birds Eur.* vii. p. 327; *Hume, S. F.* viii. p. 113; *Scully, S. F.* viii. p. 358; *Oates, S. F.* x. p. 241.

Description.—*Male and female.* Head and neck all round black; the upper plumage, tail, scapulars, tertiaries and wing-coverts dark ash brown; quills light brown, the secondaries tipped with white; lower plumage light ash brown; under tail-coverts blackish.

Iris red; bill and shield bluish white; legs and toes liver-brown, tinged with green on the tarsus; in summer there is a ring of yellow, green and red round the tibia.

Length 16 inches, tail 2·5, wing 8·5, tarsus 2·3, bill from gape 1·4. The female is of the same size.

The Coot of Europe is locally distributed throughout Burmah and is tolerably abundant. I met with it in the large swamp at Payagalay north of the town of Pegu; Capt. Wardlaw Ramsay observed it near Tonghoo, and Mr. Davison at Kedai-Keglay, between the Sittang and Salween rivers.

It is found over the whole of Europe and the northern half of Africa, and it is spread over temperate and tropical Asia, extending through the islands to Australia.

The Coot frequents weedy swamps and lakes, being found in flocks swimming about and feeding on vegetable matter. It makes a floating nest, and probably breeds in Burmah in July and August.

Family HELIORNITHIDÆ.

Genus PODICA, *Less.*

704. PODICA PERSONATA.

THE MASKED FINFOOT.

Podica personata, *G. R. Gray*, *P. Z. S.* 1848, p. 90, *Aves*, pl. 4; *Hume*, *S. F.* iii. p. 185; *Bl. B. Burm.* p. 162; *Hume & Dav.* *S. F.* vi. p. 465; *Hume*, *S. F.* viii. p. 113; *Oates*, *S. F.* x. p. 241.

Description.—*Male.* Forehead, lores, a supercilium extending to the nape, cheeks, the anterior part of the ear-coverts, chin, throat and front of the neck black; this black patch bordered by a white line terminating on either side at the posterior corner of the eye; crown, nape and upper neck dark ashy; sides of neck olive-brown; back, rump, scapulars, upper tail-coverts and the whole of the wing brown tinged with green; sides of the breast and of the body brown; breast and abdomen white, the latter barred with brown; vent and under tail-coverts brown, closely barred with whitish, the longer feathers of the coverts almost wholly brown; under wing-coverts sooty brown; tail plain brown, tipped paler.

The *female* has the chin, throat and front of the neck white with a black margin all round which extends a little over the lores, and has the same white outer border as has the black mask of the male. (*Tickell.*)

Iris hazel-brown; tarsus and toes light green, the webs turning to yellow towards the edges; claws horn-colour; bill orange-yellow, paler at the tip; edges of eyelids yellow. The female has the bill dull yellow and the iris straw-yellow.

Length 22 inches, tail 5·8, wing 10, tarsus 2·1, bill from gape 2·3. The female is considerably smaller.

The Masked Finfoot is an excessively rare bird, of which very few specimens have been procured. The only example I ever met with was secured by Mr. Richardson when we were shooting Ducks in the Engmah swamp some years ago; it flew up from under the canoe which was being poled through matted vegetation. Another specimen was brought to me by Lieut. Lloyd, R.E., who shot it in some part of Karennee. Colonel Tickell observed it in Tenasserim, and Mr. Davison procured it in this Division at Amherst, Mergui and Bankasoon.

This bird was originally described from Malacca, where Mr. Davison also met with it, and it is known to occur in Cachar and Assam. A skin

of this bird, which Capt. Wardlaw Ramsay recently examined in Edinburgh, formed part of a collection made at Darjeeling; but Prof. Traquair, of the Edinburgh Museum, kindly informs me that some of the birds in this same collection came from Cachar, and the Finfoot may consequently have been shot in this part of India and not at Darjeeling. It is not unlikely, however, to be found in the hill-streams of the Himalayas as far west as Nipal.

This bird has been found, as above recorded, in a swamp; Mr. Davison shot it on the sea-coast and in mountain-streams far in the depths of the forest, so that it appears to affect all parts of the country. It swims well with all the body immersed; but when disturbed it takes wing or scrambles up the bank of the stream into the jungle.

Suborder ALECTORIDES.

Family GRUIDÆ.

Genus GRUS, *Bechst.*

705. GRUS ANTIGONE.

THE SARUS CRANE.

Ardea antigone, Linn. *Syst. Nat.* i. p. 235. *Grus antigone*, *Jerd. B. Ind.* ii. p. 662; *Hume, Nests and Eggs*, p. 584; *Bl. B. Burm.* p. 157; *Oates, S. F.* v. p. 164; *Wardlaw Ramsay, Ibis*, 1877, p. 469; *Hume & Dav. S. F.* vi. p. 458; *Anderson, Yunnan Exped.* p. 684; *Hume, S. F.* viii. p. 112; *Hume & Marsh. Game Birds*, iii. p. 1, pl.; *Oates, S. F.* x. p. 238.

Description.—Head and a portion of the neck naked, brick-red in colour; the whole plumage greyish blue; the quills and inner webs of the tail-feathers darker; ear-coverts white; the nape and naked portion of the neck covered with black hair-like feathers.

At the breeding-season, from April to October, there is a white collar immediately below the naked portion of the neck; the scapulars and tertiaries become lengthened and white.

Irides reddish orange; bill and coronal skin greenish glaucous; skin of the face and neck pale brick-red; legs fleshy pink, brownish in front. (*Wardlaw Ramsay.*)

Length about 55 inches, tail 11, wing 26, the tertiaries extending some

6 inches beyond the tip of the primaries in the breeding-season, tarsus 13, bill from gape 7. The female is rather smaller.

The Sarus Crane occurs in all the larger plains of the Province, and is common in some parts, rare in others.

It is found over the whole of India up to the Indus river, the Indo-Burmese countries, Siam and Cochin China.

This well-known Crane occurs, as far as I have observed it, in couples, and is a constant resident. Mr. Davis, however, observed it in large flocks about Thatone in August, and Dr. Anderson saw large numbers flying overhead when he was travelling in March in Independent Burmah to the east of Bhamo. From this I should infer that the Sarus was to a great extent migratory. About Pegu the bird is resident and its fine trumpet-like call is heard at all seasons. The breeding-season is in August and September; the nest, an enormous mound of vegetable matter, is built on the ground as far out in the plain and away from villages as possible. The eggs are two in number, whitish or pale green speckled with yellowish brown.

Grus communis is inserted by Dr. Mason in his list of Burmese birds, but I fear without sufficient warrant.

Sypheotides aurita, the Lesser Florikin, is stated by a writer in the 'Bengal Sporting Magazine' (1835, p. 151) to have occurred at Sando-way in Arrakan, as mentioned by Mr. Blyth (B. Burm. p. 152). I think the occurrence of this Florikin in Arrakan not sufficiently authentic, and therefore I shall not insert this species in my list.

Order XIV. LIMICOLÆ.

Family ŒDICNEMIDÆ.

Genus ŒDICNEMUS, Temm.

706. ŒDICNEMUS SCOLOPAX.

THE STONE-CURLEW.

Charadrius œdicnemus, Linn. *Syst. Nat.* i. p. 255. *Charadrius scolopax*, S. G. *Gm. Reise Russl.* iii. p. 87, pl. 16. *Œdicnemus crepitans*, Temm. *Man. d'Orn.* p. 348; *Jerd. B. Ind.* ii. p. 654; *Hume, S. F.* i. p. 232; *id. S. F.* iii. p. 182; *Bl. B. Burm.* p. 152; *Anders. Yunnan Exped.* p. 674; *Oates, S. F.* x. p. 238. *Œdicnemus indicus*, *Salvad. Att. Soc. Ital. Sc. Nat.* viii. p. 380; *Hume, Nests and Eggs*, p. 581; *Armstrong, S. F.* iv. p. 340. *Œdicnemus scolopax*, *Dresser, Birds Eur.* vii. p. 401, pl.; *Hume & Dav. S. F.* vi. p. 458; *Hume, S. F.* viii. p. 112; *Legge, Birds Ceylon*, p. 969.

Description.—*Male and female.* Forehead, crown, nape, sides of the neck, back, rump, upper tail-coverts, scapulars and lesser wing-coverts ashy brown tinged with rufous, each feather with a black streak down the middle; median wing-coverts with a broad whitish bar and the tips black; greater wing-coverts white, with a broad black bar near the tips of the feathers; quills black; the first primary with a large patch of white, the second with a smaller patch; the later primaries tipped with white; tertiaries ashy brown, with narrow brown shaft-streaks and the outer webs edged with white; tail ashy brown, with a broad white band near the tip, above which the feather is blackish, tips black; a narrow stripe over the eye and a broad band under the eye creamy white; a moustachial streak brown edged with rufescent; chin and throat white; breast rufescent streaked with brown; abdomen, vent, thighs, axillaries and under wing-coverts white; under tail-coverts isabelline.

Iris bright yellow; eyelids duller yellow; bill black, with a large yellow patch at the base of the upper mandible extending from the gape to the anterior corner of the nostril; legs and toes pale yellowish flesh-colour; claws dark brown.

Length 15·5 inches, tail 4·8, wing 8·7, tarsus 3, bill from gape 2.

The Stone-Curlew of Burmah belongs to the smaller race termed *Œ. indicus*; but the variation in size in this species is so great that I do not think the Indian and European birds are separable into two species on the score of size alone.

This bird is found over the whole of Burmah in suitable localities, but is nowhere very abundant.

It is spread over a considerable portion of Europe and North Africa, and it occurs throughout Asia as far east as Burmah, not, however, extending as far north as Siberia.

This species frequents waste land, grassy plains and dry river-beds, and is of a shy nature. It feeds habitually on the ground, running with great speed, and it is most active at night, at which time its wild notes are frequently heard. It breeds in India, and probably also in Burmah, from February to April, laying two or three eggs on the ground, pale buff marked with brown.

Genus ESACUS, *Less.*

707. ESACUS RECURVIROSTRIS.

THE GREAT STONE-PLOVER.

Ædicnemus recurvirostris, *Cuv. Règne Anim.* i. p. 500. **Esacus recurvirostris**, *Jerd. B. Ind.* ii. p. 652; *Hume, Nests and Eggs*, p. 579; *id. S. F.* ii. p. 182; *Bl. B. Burm.* p. 152; *Hume, S. F.* v. p. 121; *Hume & Dav. S. F.* vi. p. 458; *Oates, S. F.* vii. p. 50; *Hume, S. F.* viii. p. 112; *Legge, Birds Ceylon*, p. 974; *Oates, S. F.* x. p. 238.

Description.—*Male and female.* A ring of feathers round the eye white; a band of feathers over the eye and another under the eye, meeting both in front and behind the eye, black; forehead, lores, a streak under the lower black band, chin and throat white; a moustachial stripe black; lesser wing-coverts ashy brown, the feathers tipped with blackish; the remaining wing-coverts, the whole upper plumage, central tail-feathers, scapulars, tertiaries and most of the secondaries pale grey; tail-feathers, except the centrals, brown with a broad band of white; the first three primaries dark brown with a broad band of white; the fourth and fifth all brown; the sixth brown with the basal half of the inner web white; the remaining primaries white, with a broad band of brown across them; the earlier secondaries all brown except the basal portion, which is whitish; sides of the breast grey; remainder of the lower plumage yellowish white; under wing-coverts and axillaries white.

Iris yellow; edges of the eyelids, base of the bill and nostrils yellow; remainder of bill black; legs plumbeous white; claws black.

Length 19 inches, tail 4·3, wing 9·9, tarsus 3·3, bill from gape 3·4.

E. magnirostris probably occurs on the sea-coast; and Mr. Davison is of opinion that he once saw it on an island of the Mergui archipelago. It is similar to *E. recurvirostris* in general coloration but is larger; and one of the characters by which it may be recognized is the colour of the sixth

primary, which in *E. recurvirostris* is brown with the basal half of the inner web white, but in *E. magnirostris* all white with merely a brown band on the outer web. It is an Australian species, and has been met with in the Andaman Islands.

The Great Stone-Plover is found in most of the larger rivers of Burmah, and I found it tolerably abundant in the old watercourses near the canal as well as at the mouth of the Sittang river.

It occurs all over India as far as the Indus river and in Ceylon. It is probably abundant in the Indo-Burmese countries, but does not appear to extend to China or Cochin China.

This fine Plover is usually found in pairs or small flocks on sand-banks and stretches of shingle and also, less frequently, in dried-up nullahs and swamps. It has a soft whistling note. I found the eggs near Kyeikpadein in May, two in number, laid on the bare ground in a dry nullah; they were pale stone-colour blotched with blackish.

Family PARRIDÆ.

Genus METOPIDIUS, *Wagl.*

708. METOPIDIUS INDICUS.

THE BRONZE-WINGED JACANA.

Parra indica, *Lath. Ind. Orn.* ii. p. 765; *Salvad. Ucc. Born.* p. 343; *Oates, S. F.* v. p. 165; *Hume & Dav. S. F.* vi. p. 464; *Hume, S. F.* viii. p. 113; *Bingham, S. F.* ix. p. 197; *Oates, S. F.* x. p. 241. *Metopidius indicus*, *Jerd. B. Ind.* ii. p. 708; *Hume, Nests and Eggs*, p. 591; *id. S. F.* iii. p. 183; *Bl. B. Burm.* p. 157; *Butler, S. F.* iv. p. 19; *Armstrong, S. F.* iv. p. 348; *Anders. Yunnan Exped.* p. 683.

Description.—*Male and female.* Chin and centre of the throat white brown; a broad white supercilium reaching to the nape; with this exception the whole head, neck all round, upper back and the whole lower plumage are black glossed with green and the upper back with purple; lower back, scapulars, tertiaries and wing-coverts glossy bronze; rump, upper tail-coverts, flanks, tail and under tail-coverts rich maroon; region of the vent and the thigh-coverts maroon-brown streaked with white; primaries and secondaries black, the earlier secondaries narrowly edged with white near their tips, the later ones chiefly bronze on the outer webs.

The *young bird* has the forehead, crown and nape chestnut; hind neck and upper back purple; back, scapulars, tertiaries and wing-coverts glossy

bronze; rump and upper tail-coverts barred with chestnut and purple; central tail-feathers bronze, the others barred diagonally with pale chestnut, greenish brown and white; quills bluish black; a pale stripe over the eye; sides of the head, chin and throat white; front and sides of the neck and breast bright buff; abdomen, vent and under tail-coverts white; sides of the abdomen and under wing-coverts purplish black; flanks and thighs barred with pale buff and black.

Basal half of upper mandible and the frontal shield livid blue, the portion near the gape pink; remainder of the upper and the whole lower mandible green; a rose-coloured spot on either side the base of the upper mandible; iris brown; legs, toes and claws bluish slate-colour. The colour of the bill is subject to considerable variation.

Length 10·5 inches, tail 2, wing 6·2, tarsus 2·6, bill from gape 1·3. The female is very much larger, the wing measuring 7 inches and the tarsus 3·2. The tail consists of ten feathers only.

The young bird assumes the black plumage of the adult at an advanced age, probably at the second spring moult.

The Bronze-winged Jacana is excessively common in all the swamps of the Province, except perhaps in the south of Tenasserim, where Mr. Davison did not observe it.

It is spread over a great part of India, the Indo-Burmese countries, Siam and Cochin China. It has not yet been recorded from any part of the Malay peninsula, but it is known to occur in Java and it probably inhabits Sumatra and Borneo.

This handsome bird has the habits of the Water-hens, being found in swamps and ponds which are overrun with weeds and floating plants, upon which it walks with great facility. Its mode of flight, its rounded body, the colour of its eggs and other points show its affinities, however, with the Plovers and not with the Water-hens. It is, as a rule, stupidly tame, walking about unconcernedly near the sportsman, and taking wing reluctantly. It has a very peculiar note. The breeding-season is during the rains; the nest, which is large and made of weeds, is placed on the edges of swamps; and the eggs, which are usually six in number, are pale buff thickly covered with a mass of entangled black lines.

Genus HYDROPHASIANUS, *Wagl.*

709. HYDROPHASIANUS CHIRURGUS.

THE PHEASANT-TAILED JACANA.

Tringa chirurgus, Scop. *Del. Flor. et Faun. Insub.* ii. p. 92. **Parra sinensis**, Gm. *Syst. Nat.* i. p. 709; *Kelham, Ibis*, 1882, p. 185. **Hydrophasianus chirurgus**, *Jerd. B. Ind.* ii. p. 709; *Hume, Nests and Eggs*, p. 592; *id. S. F.* iii. p. 185; *Salvad. Ucc. Born.* p. 343; *David et Oust. Ois. Chine*, p. 483; *Hume & Dav. S. F.* vi. p. 464; *Hume, S. F.* viii. p. 113; *Legge, Birds Ceylon*, p. 914; *Oates, S. F.* x. p. 241. **Hydrophasianus sinensis**, *Bl. & Wald. B. Burm.* p. 157.

Description.—*Male and female in summer.* Forehead, crown, sides of the head, chin, throat and fore neck white; a patch on the hinder part of the crown black; nape, hind neck and extreme upper part of back shining golden yellow, this yellow separated everywhere from the white of the head and neck by a black line; back, scapulars, tertiaries, rump and upper tail-coverts chocolate-brown, the latter darkest; tail black; upper wing-coverts and primary-coverts creamy white, the latter tipped with brown; first and second primaries black with a little white at base; the third with a broad white band on the inner web; the others white, edged and tipped with black; secondaries all white; the whole lower plumage from the breast chocolate-brown; under wing-coverts and axillaries white.

Male and female in winter. Lores and a supercilium whitish; chin, throat and fore neck white; a band from the gape passing under the eye, over the ear-coverts and round the fore neck, forming a pectoral band, black; remainder of the lower plumage, under wing-coverts and axillaries pure white; forehead blackish barred with white; a broad band from just above the ear-coverts, passing down the sides of the neck, and bordering the black line already described, golden yellow; crown, the whole upper plumage, tertiaries and scapulars hair-brown; lesser and median coverts hair-brown, more or less barred with black; greater wing-coverts pure white; primary-coverts and quills as in summer; some of the longer tail-coverts barred with black and white on the outer webs; central tail-feathers hair-brown, the others white.

In summer the tail is very long; in winter of moderate length, barely exceeding the wings. At both seasons the first three primaries have long narrow appendages at their tips, and the tips of the fourth and fifth primaries are much produced in a pointed form.

The *bird of the year* has the crown bright rusty; the hind neck mixed rusty and brown; the whole upper plumage, lesser and median wing-coverts and tertiaries brown, each feather very broadly edged with rusty; remainder of the wing as in the adult; tail white except the central pair of feathers, which are rusty brown; there are indications of the black line down the

sides of the neck, but none of the yellow band above it ; the lower plumage is dull white, the breast indistinctly barred with brown.

A male in winter plumage had the iris pale yellow, bill dark brown, the basal half of the lower mandible bright yellow, legs dull greenish, claws horn-colour.

A female in summer plumage had the iris brown, bill bluish, legs and toes pale plumbeous, claws horn-colour.

In summer : length about 20 inches, tail 13, wing to end of appendages 9, tarsus 2·2, bill from gape 1·4, middle toe and claw 3·5. In winter : length about 12, tail 4·5.

The Pheasant-tailed Jacana is sparingly distributed over the Province. Mr. Davison did not meet with it in Tenasserim ; but Mr. Davis procured some specimens at Thatone, and it doubtless will be found in other parts of that Division.

It is met with over the whole of India as far as Scinde and Cashmeer and in Ceylon ; it occurs in China, Cochin China and the Malay peninsula, extending to the islands of Java, Borneo and the Philippines.

In Burmah this bird is a permanent resident, but elsewhere it appears to be more or less migratory. Like the last it frequents swamps and ponds covered with reeds. Its cry at the breeding-season resembles the word *hoo-hoo-hoo*. The nest is made of weeds. I found this bird breeding near Myitkyo in August, but I could not find the nest and eggs. These latter appear to be generally four in number, laid in the nest with the small ends together and pointing to the centre, as with the Plovers ; their colour is very peculiar, being deep bronze without any marks.

Family GLAREOLIDÆ.

Genus GLAREOLA, *Briss.*

710. GLAREOLA ORIENTALIS.

THE EASTERN SWALLOW-PLOVER.

Glareola orientalis, *Leach*, *Trans. Linn. Soc.* xiii. p. 132, pl. 13 ; *Jerd. B. Ind.* ii. p. 631 ; *Hume, Nests and Eggs*, p. 568 ; *id. S. F.* ii. p. 284 ; *Salvad. Ucc. Born.* p. 319 ; *Bl. B. Burm.* p. 154 ; *David et Oust. Ois. Chine*, p. 431 ; *Wardlaw Ramsay, Ibis*, 1877, p. 469 ; *Hume & Dav. S. F.* vi. p. 455 ; *Oates, S. F.* vii. p. 49 ; *Hume, S. F.* viii. p. 112 ; *Legge, Birds Ceylon*, p. 980 ; *Bingham, S. F.* ix. p. 196 ; *Oates, S. F.* x. p. 237 ; *Kelham, Ibis*, 1882, p. 6.

Description.—*Male and female.* Upper plumage pale brown ; the upper tail-coverts pure white ; tail white, broadly tipped with brown

feathers on the edges of the eyelids white; chin and throat pale rufous, surrounded by a well-defined narrow black band commencing on each side at the gape and passing under the eye; sides of the head and neck the same colour as the throat; lower plumage rufous-grey, turning to white on the lower abdomen, vent and under tail-coverts; under wing-coverts and axillaries chestnut; quills dark brown; the shaft of the first primary whitish, the others rufous.

Bill black; gape bright red; mouth flesh-colour; iris hazel-brown; legs purplish brown; claws dark horn.

Length 9·5 inches, tail 3·4, wing 7·2, tarsus 1·3, bill from gape 1. The female is of much the same size.

This species differs from its European ally *G. pratincola* in wanting the white tips to the secondaries and in having the tail much less forked. In *G. orientalis* the fork of the tail is about one inch, in the other rather more than two inches. There are other differences of minor importance.

The Eastern Swallow-Plover is abundant throughout Burmah in suitable localities from February to June, a few birds remaining up to August. They are very punctual in arriving in February, but less so in leaving, the birds apparently departing in batches as the business of incubation is done with. Capt. Wardlaw Ramsay observed them migrating northwards over Tonghoo in April; and this is the month in which most of the birds leave the Province.

It is found over the whole of India up to Scinde and in Ceylon; it occurs in Mongolia and China, Cochin China, the Malay peninsula and the islands to Australia.

This Swallow-Plover appears to visit Burmah solely for the purpose of breeding. I succeeded in finding the eggs in April and May, but the majority of the birds lay in March. They frequent sandy wastes and burnt-up paddy-fields; and the eggs, two or three in number, are laid on the bare ground. In colour the eggs are buff thickly blotched with blackish brown. These birds run well and spend most of their time on the ground; but occasionally large numbers may be seen hawking after insects, flying with great speed in circles and backwards and forwards.

711. GLAREOLA LACTEA.

THE SMALL SWALLOW-PLOVER.

Glareola lactea, Temm. Pl. Col. 399; Jerd. B. Ind. ii. p. 632; Hume, *Nests and Eggs*, p. 568; id. S. F. iii. p. 179; Bl. B. Burm. p. 154; Armstrong, S. F. iv. p. 338; Oates, S. F. v. p. 164; Wardlaw Ramsay, *Ibis*, 1877, p. 469; Hume & Dav. S. F. vi. p. 455; Hume, S. F. viii. p. 112; Legge, *Birds Ceylon*, p. 984; Oates, S. F. x. p. 237.

Description.—*Male and female.* Upper plumage and wing-coverts pale brown; upper tail-coverts white; winglet and primary-coverts black; primaries dark brown, the earlier ones with white shafts; secondaries white tipped with brown; tertiaries like the back; central tail-feathers black, white at base; the others with an increasing amount of white and less black, the outermost feathers becoming white merely tipped with black; forehead and a line from the bill to the eye blackish brown; breast pale ashy; chin, throat and remainder of lower plumage white; under wing-coverts and axillaries smoky black.

Iris dark brown; terminal half of bill black, basal half red, changing to yellowish brown at the gape; legs, feet and claws black.

Length 6·8 inches, tail 2·1, wing 5·8, tarsus ·8, bill from gape ·75. The female is of the same size.

The Small Swallow-Plover is found abundantly on the larger rivers and creeks of the Province, except in the southern part of Tenasserim, where it appears to be absent.

It occurs over the greater part of India up to the Indus river, in Ceylon, and probably throughout the Indo-Burmese countries.

This Swallow-Plover is confined entirely to sand-banks and to the low flat shores of the larger streams. It is a constant resident and is usually seen in large flocks. During the day they run about the sand, and in the evening they fly about like Swallows in search of winged insects. They breed in April, laying three or four eggs in a small depression in the sand.

Family CHARADRIIDÆ.

Genus CHARADRIUS, *Linn.*

712. CHARADRIUS FULVUS.

THE EASTERN GOLDEN PLOVER.

Charadrius fulvus, *Gm. Syst. Nat.* i. p. 687; *Dresser, Birds Eur.* vii. p. 443, pl.; *Hume, S. F.* i. p. 228, ii. p. 287; *id. Nests and Eggs*, p. 570; *id. S. F.* iii. p. 179; *Bl. B. Burm.* p. 153; *Salvad. Ucc. Born.* p. 313; *Armstrong, S. F.* iv. p. 339; *Wardlaw Ramsay, Ibis*, 1877, p. 468; *David et Oust. Ois. Chine*, p. 424; *Anders. Yunnan Exped.* p. 676; *Hume & Dav. S. F.* vi. p. 455; *Hume, S. F.* vii. p. 482, viii. p. 112; *Scully, S. F.* viii. p. 350; *Legge, Birds Ceylon*, p. 934; *Bingham, S. F.* ix. p. 197; *Oates, S. F.* x. p. 237; *Kelham, Ibis*, 1882, p. 8. **Charadrius longipes**, *Temm., Bonap. Rev. Crit.* 1850, p. 180; *Jerd. B. Ind.* ii. p. 636. **Pluvialis longipes**, *Temm., Bonap. Comptes Rend.* 1856, pt. ii. p. 417.

Description.—*Male and female in summer.* Forehead white, continued back over each eye as a broad supercilium extending down the sides of the neck; the whole upper plumage black, each feather with large marginal yellow spots on both webs, the spots on the wing-coverts tending to white; primary-coverts and the greater series brown, tipped and margined with white; primaries brown, the central portion of the shaft whitish; secondaries brown tipped with whitish; tail blackish, irregularly barred with white; chin, throat, fore neck, breast and abdomen black; vent and flanks black mottled with white; under tail-coverts white; axillaries smoky brown with white tips.

Male and female in winter. The upper plumage is black, the feathers margined with yellow; the wing-coverts margined with dull white; the quills and tail much as in summer; forehead and sides of the head fulvous, the latter part streaked with brown; chin and upper throat fulvous-white; lower throat, fore neck, and feathers under the cheeks and ear-coverts rather bright fulvous with minute streaks of brown; breast greyish, the feathers broadly margined with fulvous; remainder of lower plumage pale buffy white; the sides of the body more or less marked and fringed with fulvous; axillaries smoky brown, tipped with white as in summer.

No description can be made comprehensive enough to include all the variations of plumage this bird is liable to in winter. The above description applies to the majority of birds shot from November to March; but birds in nearly full summer plumage may occasionally be obtained in Burmah late in the spring and early in the autumn.

Bill dark brown; iris dark hazel-brown; legs plumbeous; claws horn-colour.

Length 10 inches, tail 2·5, wing 6·3, tarsus 1·8, bill from gape 1·1. The sexes are of about the same size.

The Eastern Golden Plover differs from the Western form, *C. pluvialis*, in having the axillaries smoky brown instead of pure white. The American form *C. virginicus* has the axillaries of the same colour as those of *C. fulvus*, but is separated on account of its greater size.

The Golden Plover is abundant during the cold season throughout Burmah, arriving in September. The majority leave us again in November and December, but a considerable number remain till April or May.

It has a wide distribution, being found over the greater part of Asia, straggling into Europe and Africa at times, and ranging on the east down to Australia and some of the islands of the Pacific Ocean.

The Golden Plover frequents waste ground, plains of grass and wet paddy-fields, and also the edges of rivers, and is generally met with in flocks of considerable size. It breeds in China, and also it is said in some parts of India, laying four eggs in a hollow lined with a few blades of grass. The eggs are yellowish blotched with blackish sepia.

Genus SQUATAROLA, *Leach*.

713. SQUATAROLA HELVETICA.

THE GREY PLOVER.

Tringa helvetica, Linn. *Syst. Nat.* i. p. 250. *Squatarola helvetica*, *Jerd. B. Ind.* ii. p. 635; *Dresser, Birds Eur.* vii. p. 455; *Salvad. Ucc. Born.* p. 313; *Bl. B. Burm.* p. 153; *Scully, S. F.* iv. p. 184; *Armstrong, S. F.* iv. p. 338; *David et Oust. Ois. Chine*, p. 424; *Hume & Dav. S. F.* vi. p. 455; *Hume, S. F.* viii. p. 112; *Legge, Birds Ceylon*, p. 929; *Oates, S. F.* x. p. 237; *Kelham, Ibis*, 1882, p. 7.

Description.—*Male and female in summer.* Sides of the forehead, lores, sides of the head, chin, throat, breast and abdomen deep black; vent, thighs and under tail-coverts white; axillaries black tipped with brownish; the whole head from the forehead to the nape, the upper neck and two broad bands continued down to the sides of the breast white, the centres of the feathers more or less brown; back, rump, scapulars, tertiaries and wing-coverts a mixture of white, black and brown, more or less disposed in the shape of irregular bars; upper tail-coverts white barred with brown; tail white barred with broader brown bars; quills brown, a portion of the shaft and a long patch on the inner webs white.

Male and female in winter. Forehead, lores, cheeks, chin and throat white with a few minute brown streaks; feathers immediately round the

eye dark brown; sides of the head and a broad supercilium rather densely streaked with brown; the whole upper plumage, wing-coverts and tertiaries brown, each feather fringed with dull white; quills much as in summer, but the later primaries with a white patch on the outer webs; all the quills margined narrowly with white; upper tail-coverts white, with a few irregular brown bars; tail brown, closely barred with broad bars of brown; sides of the throat and neck dull white, boldly streaked with brown; fore neck and sides of the breast similarly streaked but more sparingly; remainder of the lower plumage white, the sides of the body streaked and barred with brown; axillaries blackish brown, narrowly tipped with brown.

Irides dark brown; bill, legs and feet black. (*Armstrong*.)

Length 12 inches, tail 3·5, wing 7·8, tarsus 1·7, bill from gape 1·4.

The plumage of this species varies excessively; in general appearance it is extremely like *Charadrius fulvus*, but it may always be recognized by its black axillaries, absence of a hind toe, and larger size.

The Grey Plover is a comparatively rare bird. I have never myself met with it; but Capt. Wardlaw Ramsay procured it at Tonghoo, and Dr. Armstrong observed it in the Irrawaddy Delta between Elephant Point and China Bakeer and again at Amherst. Mr. Blyth records it from Arrakan. It is a winter visitor to the Province.

It is a bird of very wide distribution, being found, according to season, in every portion of the globe except perhaps South America.

This species appears to be a sea-shore bird in great measure, being comparatively seldom observed inland except on the banks of very large rivers.

Genus *ÆGIALITIS*, *Boie*.

714. *ÆGIALITIS GEOFFROYI*.

THE GREATER SAND-PLOVER.

Charadrius geoffroyi, *Wagl. Syst. Av.*, *Charadrius*, sp. 19. *Ægialitis geoffroyi*, *Jerd. B. Ind.* ii. p. 638; *Harting, Ibis*, 1870, p. 378, pl. xi.; *Salvad. Ucc. Born.* p. 318; *Armstrong, S. F.* iv. p. 339; *David et Oust. Ois. Chine*, p. 426; *Dresser, Birds Eur.* vii. p. 475, pl.; *Hume & Dav. S. F.* vi. p. 455; *Hume, S. F.* viii. pp. 112, 200; *Legge, Birds Ceylon*, p. 939; *Oates, S. F.* x. p. 237; *Kelham, Ibis*, 1882, p. 9. *Cirripidesmus geoffroyi*, *Hume, S. F.* i. p. 229, ii. p. 288; *id. Nests and Eggs*, p. 571.

Description.—*Male and female in winter*. Forehead, a broad supercilium and the entire lower plumage, with the under wing-coverts and axillaries,

white; the whole upper plumage and wing-coverts cinereous brown, all the feathers obsoletely edged paler; the greater wing-coverts broadly tipped with white; the longer upper tail-coverts more or less whitish; lores, a broad patch under the eye and the ear-coverts like the back; a more or less distinct band of ashy brown across the breast, sometimes absent; quills brown, the shaft of the first primary white, those of the others with a portion white; the last three or four primaries with a central patch of white on the outer webs; secondaries tipped with white; outer pair of tail-feathers nearly entirely white, the next pair more or less albescent with a brown patch near the tip, the others brown tipped with white.

In *summer* the forehead is white, bounded on the front part of the crown by a transverse black band; the upper plumage sandy brown; lores, a patch under and in front of the eye, and the whole of the ear-coverts black; breast rufous, extending on to the flanks; other parts as in winter.

Iris brown; bill black, yellowish at the gape beneath; tibia and feet slate-bluish or plumbeous, paling to yellowish olive or, in some, fleshy grey. (*Legge.*)

Length 8·5 inches, tail 2·3, wing 5·4, tarsus 1·5, bill from gape 1·1, swollen portion of upper mandible ·45.

The Greater Sand-Plover is a winter visitor to Burmah, occurring more or less on the sea-shore or its immediate vicinity. Dr. Armstrong observed it near Elephant Point and at Amherst, and Mr. Hume's collectors got it at Thatone and at the mouth of the Bassein river. It will probably be found along the whole sea-coast, for Mr. Shopland sent it to me from Arrakan.

It inhabits the shores of nearly the whole of Asia, extending to Australia and the islands of the Pacific Ocean; and it is found along the shores of Africa down to the Cape of Good Hope, straggling at times into Europe.

This Plover and the others of the genus have much the same habits in common. They occur in flocks on mud-banks and shingle, running about with great speed after insects and small crustaceans. They are usually shy and not easily approached. They lay three or four eggs, depositing them on the bare ground in a small depression, and their colour is buff marked with purple and blackish. The present species will not of course be found breeding in Burmah, as it is merely a winter migrant.

715. *ÆGIALITIS MONGOLICA*.

THE LESSER SAND-PLOVER.

Charadrius mongolus, *Pall. Reis. Russ. Reichs*, iii. p. 700. *Charadrius mongolicus*, *Pall. Zoogr. Rosso-Asiat.* ii. p. 136. *Charadrius pyrrhotherax*, *Temm. in Gould's Birds Europe*, pl. 299. *Ægialitis pyrrhotherax*, *Jerd. B. Ind.* ii. p. 639. *Ægialitis mongolicus*, *Harting, Ibis*, 1870, p. 384; *Salvad. Ucc. Born.* p. 316; *Hume, S. F.* iii. p. 179; *Bl. B. Burm.* p. 153; *Armstrong, S. F.* iv. p. 339; *David et Oust. Ois. Chine*, p. 427; *Legge, Birds Ceylon*, p. 942; *Kelham, Ibis*, 1882, p. 10. *Cirrepidesmus mongolicus*, *Hume, S. F.* i. p. 230, ii. p. 289; *id. Nests and Eggs*, p. 571. *Ægialitis mongolus*, *Hume & Dav. S. F.* vi. p. 455; *Cripps, S. F.* vii. p. 299; *Hume, S. F.* viii. pp. 112, 200; *Oates, S. F.* x. p. 237.

Description.—*Male and female in winter.* Quite similar to the last, from which it only differs in being smaller.

In *summer* the plumage of the two is also very similar; but the present species is characterized by being more rufous on the breast, neck and crown.

The bill and other parts are coloured as in the last.

Length 7·5 inches, tail 2·2, wing 5, tarsus 1·3, bill from gape ·8, swollen portion of the upper mandible ·3.

This is to be distinguished from the last only by its size and especially by the dimensions of the bill and tarsus.

The Lesser Sand-Plover is a common winter visitor to Burmah, being found not only on the sea-coast but on all the rivers of the interior, especially where these have low flat banks.

This Plover inhabits nearly the whole of Asia, extending down to Australia; it is also found in North-east Africa, and it is said to occur occasionally in Europe, but Mr. Dresser excludes it from his list.

716. *ÆGIALITIS CANTIANA*.

THE KENTISH PLOVER.

Charadrius cantianus, *Lath. Ind. Orn. Suppl.* p. lxvi. *Ægialitis cantianus*, *Jerd. B. Ind.* ii. p. 640; *Armstrong, S. F.* iv. p. 340; *Dresser, Birds Eur.* vii. p. 483, pl.; *David et Oust. Ois. Chine*, p. 430; *Hume & Dav. S. F.* vi. p. 456; *Hume, S. F.* viii. pp. 112, 200; *Legge, Birds Ceylon*, p. 947; *Oates, S. F.* x. p. 237. *Ægialophilus cantianus*, *Hume, S. F.* i. p. 230; *id. Nests and Eggs*, p. 571. *Ægialitis alexandrinus* (*L.*), *Bl. B. Burm.* p. 154.

Description.—*Male in summer.* Forehead and a broad supercilium white; crown and nape pale rufous; a broad band separating the white of the

forehead from the rufous of the crown, the ear-coverts, a streak from the gape to the eye, and a patch on either side the breast black; the whole lower plumage, axillaries, under wing-coverts and a narrow collar round the hind neck, immediately next the rufous of the head, pure white; back, rump, upper tail-coverts, scapulars, tertiaries and upper wing-coverts ashy brown, the greater coverts tipped with white; the four central tail-feathers dark brown; the three outer pairs white, the remaining pair whitish brown; quills brown, the shaft of the first primary pure white, those of the others mesially white for an inch or more in extent; secondaries broadly tipped with white.

The *female in summer* differs from the male in having the black bands on the head narrower, and the rufous on the crown extremely pale.

Both sexes in winter have the rufous feathers of the crown and nape broadly edged with brown and the black marks on the head are mixed with white.

Young birds have the forehead whitish, the crown and nape ashy brown like the back; the collar round the neck is present, but the white is less pure; there are no black bands on the head nor patches on the sides of the breast, these being indicated by a brown tinge only.

Bill and legs black, iris dark brown.

Length 6·5 inches, tail 2, wing 4·5, tarsus 1·1, bill from gape ·8. The female is of the same size or rather smaller.

This and the two preceding species may be separated from all the other small Plovers likely to occur in Burmah by the colour of the shafts of the primaries. In all three, the shaft of the first is entirely white, the others white only on the central portion for a length of an inch or an inch and a half. *Æ. placida* was at one time thought to occur in Burmah, and it may yet be found in this country; it can be recognized by its having the shafts of all the primaries hair-brown, except a minute portion near the tips, which is albescent.

I have never met with the Kentish Plover in Burmah, but Dr. Armstrong found it very abundant along the coast about the Delta of the Irrawaddy. Mr. Davison procured it at various points in Tenasserim, and Capt. Wardlaw Ramsay at Tonghoo. Mr. Blyth gives it from Arrakan.

It occurs in the central and southern portions of Europe, the whole of Africa, and nearly the whole of Asia down to Ceylon on the one hand and Singapore on the other, extending east as far as Cochin China, where Dr. Tiraud met with it.

Major Legge found it breeding in Ceylon in June and July on the banks of salt lagoons. It is unlikely to be other than a winter visitor to Burmah.

717. *ÆGIALITIS DUBIA*.

THE LESSER RINGED PLOVER.

Charadrius dubius, Scop. *Del. Flor. et Faun. Insub.* ii. p. 93. *Charadrius curonicus*, Gm. *Syst. Nat.* i. p. 692. *Charadrius philippinus*, Lath. *Ind. Orn.* ii. p. 745. *Charadrius fluviatilis*, Bechst. *Gemeinn. Naturg. Deutschl.* iv. p. 422. *Ægialitis philippensis* (Scop.), *apud Jerd. B. Ind.* ii. p. 640. *Ægialitis fluviatilis*, Hume, *S. F.* i. p. 230, ii. p. 289; *id. Nests and Eggs*, p. 572. *Ægialitis dubius*, Salvad. *Ucc. Born.* p. 316; *Bl. B. Burm.* p. 153; David *et Oust. Ois. Chine*, p. 429; Anders. *Yunnan Exped.* p. 676; Hume, *S. F.* vii. p. 227 (note); Cripps, *S. F.* vii. p. 299; Hume, *S. F.* vii. p. 300 (note), viii. pp. 112, 199; Scully, *S. F.* viii. p. 351; Bingham, *S. F.* ix. p. 196; Oates, *S. F.* x. p. 237; Kelham, *Ibis*, 1882, p. 10. *Ægialitis curonica*, Wald. in *Bl. B. Burm.* p. 154; Dresser, *Birds Eur.* vii. p. 491, pl.; Armstrong, *S. F.* iv. p. 340; Hume & Dav. *S. F.* vi. p. 456; Legge, *Birds Ceylon*, p. 952.

Description.—*Male and female.* Feathers immediately at the base of the upper mandible black, continued as a band to the eyes, widening and encircling the eye and covering the ear-coverts; forehead white, next to which is a broad black band succeeded by a narrower white one which is continued on both sides over the eyes to the end of the ear-coverts; the whole chin and throat pure white continued narrowly round the hind neck to form a collar; a broad band across the breast black, continued narrowly round the hind neck immediately next the white collar; crown, nape, back, rump, upper tail-coverts, wing-coverts, scapulars and tertiaries ashy brown; central tail-feathers ashy brown broadly tipped with dark brown; the next ashy brown, then subterminally dark brown and tipped with white; the remaining feathers intermediate in coloration between these and the outermost feathers, which are pure white with a brown patch near the centre of the inner webs; quills ashy brown, the shaft of the first primary white, those of the others all brown; the secondaries broadly tipped and partially margined with white; the whole under plumage from the breast-band downwards white, as are also the axillaries and under wing-coverts.

In winter the plumage appears to undergo very little change, the black bands on the head and breast being merely mixed with greyish and consequently being less well defined.

Bill black, a very small portion of the base of the lower mandible yellowish; iris dark brown; edges of the eyelids yellow; legs dusky greenish brown; in the summer the legs are said to be yellow.

Length 6·5 inches, tail 2·4, wing 4·5, tarsus ·9, bill from gape ·6. The female is a little larger.

The Lesser Ringed Plover appears to be generally distributed throughout Burmah as a winter visitor. I found it tolerably abundant in Southern

Pegu, and Capt. Wardlaw Ramsay procured it at Rangoon. Dr. Armstrong observed it in the Irrawaddy Delta, and Mr. Davison at many points in Tenasserim. I do not remember to have seen it in Northern Pegu, nor has it been recorded from Arrakan, but it is very likely to be found in these parts of Burmah.

It has a wide range, inhabiting the greater part of Europe and Africa, and the whole of Asia down to the Philippine Islands and Celebes.

This species appears to visit Burmah only in the winter; but it is very probable that it has been overlooked in the summer, for it seems to breed in many parts of India, and there is no reason why it should not do the same in Burmah. Its eggs will be found on sand-banks, probably in April.

718. *ÆGIALITIS JERDONI*.

THE LITTLE INDIAN RINGED PLOVER.

Ægialitis minutus (Pall.), *apud Jerd. B. Ind.* ii. p. 641; *Legge, S. F.* iii. p. 372; *Hume & Dav. S. F.* vi. p. 456; *Cripps, S. F.* vii. p. 300; *Hume, S. F.* viii. pp. 112, 199; *Oates, S. F.* x. p. 238. *Ægialitis alexandrinus* (L.), *apud Bl. B. Burm.* p. 154. *Ægialitis philippinus* (Lath.), *apud Hume, S. F.* iii. p. 179. *Ægialitis jerdoni*, *Legge, P. Z. S.* 1880, p. 39; *id. Birds Ceylon*, p. 956.

Description.—Similar to *Æ. dubia*, from which it differs in being smaller, in having the edges of the eyelids swollen and protuberant, and in having the basal half of the lower mandible yellow. Another point of difference, according to Mr. Hume, is that in summer the legs of *Æ. jerdoni* do not become yellow as in *Æ. dubia*.

Length 6 inches, tail 2·2, wing 4·1, tarsus ·9, bill from gape ·55. The female is rather larger, approaching in size the male of *Æ. dubia*.

The Little Indian Ringed Plover is generally distributed over Burmah, but is nowhere very abundant. I procured it near Thayetmyo and also in Southern Pegu along the banks of the canal. Capt. Wardlaw Ramsay got it at Tonghoo, and Mr. Davison observed it in Tenasserim about the latitude of Moulmein.

It occurs in suitable localities over the whole of India and Ceylon, the Indo-Burmese countries, and Cochin China, where Dr. Tiraud procured many specimens near Saigon.

This Little Plover is probably a constant resident in Burmah, notwithstanding the fact that all my specimens were procured in the winter season. In the rains when sand-banks are submerged its area of distribution must become much restricted, and it is likely at this time of the year to escape observation. Major Legge found it breeding in Ceylon.

Genus CHETTUSIA, *Bonap.*

719. CHETTUSIA CINEREA.

THE GREY-HEADED LAPWING.

Pluvianus cinereus, *Bl. J. A. S. B.* xi. p. 587. *Lobivanellus inornatus*, *Temm. et Schleg. Faun. Jap., Aves*, p. 106, pl. 63. *Chettusia inornata*, *Jerd. B. Ind.* ii. p. 646. *Chettusia cinerea*, *Hume, S. F.* iii. p. 180; *Bl. B. Burm.* p. 152; *David et Oust. Ois. Chine*, p. 422; *Hume & Dav. S. F.* vi. p. 456; *Cripps, S. F.* vii. p. 300; *Hume, S. F.* viii. p. 112; *Oates, S. F.* x. p. 238.

Description.—*Male and female.* Head and neck all round grey; back, rump, lesser and median wing-coverts, scapulars and tertiaries greyish brown with a faint vinous tinge; upper tail-coverts white; tail white with a broad black band near the tip, diminishing in width towards the exterior of the tail and totally absent on the outermost feathers; primary-coverts, winglet and primaries black; greater wing-coverts and secondaries white; breast greyish brown, bounded below by a broad black band; remainder of the lower plumage, under wing-coverts and axillaries white.

Edges of the eyelids, lappets and the basal two thirds of the bill deep yellow, terminal third black; iris red; legs and toes dull yellow; claws black.

Length 14·5 inches, tail 4·5, wing 9·8, tarsus 3, bill from gape 1·6. The female is perhaps a trifle larger.

The Grey-headed Lapwing is tolerably abundant in the winter, but is local, being confined to the neighbourhood of swamps and marshy ground. I observed large flocks of this species once or twice in Southern Pegu and also in the Engmah swamp near Prome. Capt. Wardlaw Ramsay got it at Tonghoo, and it has been obtained at Bassein. Mr. Davison met with it in the low parts of Northern Tenasserim between the Sittang and Salween rivers. There is no record of its occurrence in Arrakan, but it is doubtless found in that Division.

It occurs in Bengal and portions of Northern India, in China and Cochin China, and it extends north to Japan and Central Asia. It is said to breed in Mongolia.

This Lapwing is always found in flocks of a dozen individuals or more, feeding on the edges of swamps. It is not of a shy disposition and is easily approached.

Genus *HOPLOPTERUS*, Bonap.720. *HOPLOPTERUS VENTRALIS*.

THE SPUR-WINGED LAPWING.

Charadrius ventralis, Wagl. *Syst. Nat. Av.*, *Charadrius*, sp. 11. *Hoplopterus ventralis*, Jerd. *B. Ind.* ii. p. 650; Hume, *Nests and Eggs*, p. 578; *id.* *S. F.* iii. p. 181; *Bl. B. Burm.* p. 153; *David et Oust. Ois. Chine*, p. 423; *Anders. Yunnan Exped.* p. 675; *Hume & Dav. S. F.* vi. p. 457; *Cripps, S. F.* vii. p. 300; *Hume, S. F.* viii. p. 112; *Scully, S. F.* viii. p. 352; *Bingham, S. F.* ix. p. 196; *Oates, S. F.* x. p. 238.

Description.—*Male and female.* Forehead, crown and the long crest front of the face, chin and a broad band down the throat black; remainder of the sides of the head and sides of the neck and the lower plumage white; a broad brown band across the breast and a narrower black one across the abdomen; back, scapulars, tertiaries, rump, and the lesser and median wing-coverts next the body light brown; upper tail-coverts white; tail basally white, terminally black; coverts next the edge of the wing black; greater coverts white; primaries black, the bases white; secondaries chiefly white.

Iris dark brown; bill black; legs leaden brown; claws black.

Length 12 inches, tail 3·4, wing 7·8, tarsus 2·5, bill from gape 1·4. The female is of the same size.

The Spur-winged Lapwing is generally distributed over the whole of Burmah and Karennee and is a constant resident.

It occurs over a considerable portion of the Indian peninsula, not, however, extending to the Indus river. It is found in the Indo-Burmese countries and in Cochin China. It will probably be met with throughout Southern China, but hitherto it has only been recorded from the island of Hainan.

This Lapwing is found singly or in pairs on sand-banks and the flat shingly shores of the larger rivers and creeks. It runs with great speed, stopping suddenly and bobbing its head at frequent intervals. I have not found its nest; but in India it breeds in March and April, depositing four eggs in a depression in the sand.

Genus LOBIVANELLUS, *Strickl.*

721. LOBIVANELLUS ATRONUCHALIS.

THE BURMESE LAPWING.

Sarcogramma atrogularis, *Bl. J. A. S. B.* xxxi. p. 345 (note). *Lobivanellus atronuchalis* (*Bl.*), *Jerd. B. Ind.* ii. p. 648; *Hume, Nests and Eggs*, p. 576; *id. S. F.* iii. p. 181; *Bl. B. Burm.* p. 152; *Anders. Yunnan Exped.* p. 675; *Hume & Dav. S. F.* vi. p. 457; *Hume, S. F.* viii. p. 112; *Oates, S. F.* x. p. 238; *Kelham, Ibis*, 1882, p. 10.

Description.—*Male and female.* The whole head, neck and breast black; a broad band over the ear-coverts white; a collar on the hind neck white; back, rump, scapulars, tertiaries, lesser and median coverts brownish grey, glossed with purple on the coverts and with green elsewhere; upper tail-coverts white; tail basally white, then black and broadly tipped white, except the two centre feathers, which are tipped with pale grey; greater wing-coverts grey broadly tipped with white; primaries and secondaries black, the bases white, increasing in extent till the last secondary is nearly wholly white; under plumage from the breast white.

Terminal half of bill black; the remainder, the eyelids and wattles red; iris crimson; legs and feet pale yellow; claws black.

Length 13 inches, tail 4·5, wing 8·5, tarsus 3, bill from gape 1·3. The female is of the same size.

This species is very closely allied to *L. indicus*; but in that bird the white bands over the ear-coverts are produced and meet on the hind neck. Mr. Blyth when describing the present species named it *S. atrogularis*, apparently by an oversight. Dr. Jerdon appears to have been the first writer to change the designation to *atronuchalis*, very properly attaching Mr. Blyth's name to this alteration.

The Burmese Lapwing is very abundant throughout the whole of Burmah and Karennee.

It extends northwards as far as Bhamo in Independent Burmah, to the east as far as Cochin China and southwards down to Singapore.

This Lapwing is very well known to Europeans, owing to the persistent manner in which it cries "Did he do it" when disturbed. It is generally found in couples, occasionally in small flocks of four or six. It is not partial to watery localities, being more frequently met with in waste land and dry fields. There are few places, however, wet or dry, from which it is absent. I have frequently found the eggs in April and May; usually four in number, they are deposited on the bare ground in paddy-

fields and grass-lands, a few bits of hard clay being sometimes placed round them. In colour they are buff thickly blotched and spotted with blackish brown.

Genus LOBIPLUVIA, *Bonap.*

722. LOBIPLUVIA MALABARICA.

THE YELLOW-WATTLED LAPWING.

Charadrius malabaricus, *Bodd. Tabl. Pl. Enl.* p. 53. *Charadrius bilobus*, *Gm. Syst. Nat.* i. p. 691. *Sarciophorus bilobus*, *Jerd. B. Ind.* ii. p. 649; *Blanf. Ibis*, 1870, p. 470; *Bl. B. Burm.* p. 153. *Lobipluvia malabarica*, *Hume, Nests and Eggs*, p. 577; *Hume, S. F.* viii. p. 112; *Legge, Birds Ceylon*, p. 966; *Parker, S. F.* ix. p. 482; *Hume, S. F.* x. p. 238, note.

Description.—*Male and female.* Top of head and nape black, bounded by a white border running round the nape from the posterior corner of the eye; hind neck, back, scapulars and wing-coverts pale earth-brown, passing into a lighter or greyer hue over the fore neck, throat and chest; chin, gorge and edge of brown pectoral region blackish; upper tail-coverts, tail, under surface, under wing- and under tail-coverts, the tips of the secondary-coverts and base of secondaries, with the outer webs of some of the underlying tertials, white; quills and a subterminal band on all but the two outer rectrices black, preceded on the central pair by a smoky wash. In examples not fully adult the black caudal band extends to the penultimate. (*Legge.*)

Iris yellowish or grey, with a brown outer edge; eyelid and wattles lemon-yellow; bill black, greenish yellow at the base; tibia and tarsus yellow; feet dingy yellow; claws black. (*Legge.*)

Length 11 inches, tail 3, wing 8, tarsus 2·4, bill from gape 1·25.

The Yellow-wattled Lapwing was procured at Thayetmyo by Mr. Blanford some years ago, and there is no other record of its occurrence in Burmah.

It is met with over the whole of India and Ceylon.

This Lapwing, according to Dr. Jerdon, frequents the drier parts of India; and this in some measure accounts for its having been found in the dry district of Thayetmyo and not elsewhere in Burmah. It associates in small flocks except at the breeding-season, which in India appears to be April and May. The eggs, four in number, are laid in a depression in the ground in waste plains.

Genus STREPSILAS, *Illig.*

723. STREPSILAS INTERPRES.

THE TURNSTONE.

Tringa interpres, Linn. *Syst. Nat.* i. p. 248. *Strepsilas interpres*, Jerd. *B. Ind.* ii. p. 656; *Salvad. Ucc. Born.* p. 320; *Bl. B. Burm.* p. 154; *Dresser, Birds Eur.* vii. p. 555, pl.; *Hume, S. F.* iv. p. 464; *David et Oust. Ois. Chine*, p. 433; *Hume, S. F.* viii. p. 112; *Legge, Birds Ceylon*, p. 900; *Oates, S. F.* x. p. 238. *Cinclus interpres*, *Hume, S. F.* i. p. 233, ii. p. 292.

Description.—*Male in summer.* Crown of the head white streaked with black; a broad mandibular stripe black; another black stripe from the central part of the forehead to the eye, passing down in front, widening and spreading out under the eye and extending to the end of the mandibular stripe; remainder of the head white; fore neck and sides of the breast black, extending upwards in two broad bands, one on either side the neck and nearly meeting behind the neck; hind neck white; a broad band down the back chestnut; sides of the back black; scapulars mingled black and chestnut, some of the lower feathers pure white; primaries dark brown, the shafts white, and some of the later quills tipped with white; secondaries chiefly white; tertiaries brown, broadly tipped and edged with chestnut; wing-coverts brown, edged paler, the greater series broadly edged with pure white; rump and the longer tail-coverts white, the shorter feathers black; tail white at base, brown elsewhere, and all but the central feathers tipped with white; centre of the breast, abdomen, vent, sides of the body, axillaries, under wing- and tail-coverts pure white; feathers covering the thighs brown.

The *female in summer* has the head and nape much darker, and the chestnut and black markings are less developed than in the male.

Male and female in winter. The feathers of the black portions of the plumage become fringed with white or brown and the chestnut becomes very dull.

Young birds have the whole head, the whole upper plumage and the breast brown; the feathers of the head and body edged with yellowish white, those of the wings with rufous; chin, throat and lower plumage white.

Bill black; iris deep brown; legs orange-yellow (*Jerdon*); legs orange-red (*Dresser*); legs in some orange-yellow, in others orange-red (*Hume*).

Length 9 inches, tail 2.6, wing 6, tarsus 1, bill from gape 1. The female is of the same size.

The Turnstone is said by Mr. Blyth to occur in Arrakan, and it will no

doubt be found along the whole coast of Pegu and Tenasserim. I killed one specimen at Kyeikpadein in September in a paddy-field.

It is found almost throughout the entire globe. In the tropical portions it is as a rule a winter visitor only; but Mr. Parker (*l. c.*) observed them in Ceylon in June.

The Turnstone frequents the sea-coast and especially those shores which are rocky. It feeds on small crustaceans and marine worms, in searching for which it is said to turn over stones and shells, hence its trivial name. It breeds in northern climates, laying four eggs on the ground under shelter of a stone or bush.

Genus HÆMATOPUS, *Linn.*

724. HÆMATOPUS OSTRALEGUS.

THE OYSTERCATCHER.

Hæmatopus ostralegus, *Linn. Syst. Nat.* i. p. 257; *Jerd. B. Ind.* ii. p. 659; *Hume, S. F.* i. p. 234; *Bl. B. Burn.* p. 154; *Dresser, Birds Eur.* vii. p. 567; *Hume, S. F.* viii. p. 112; *Legge, Birds Ceylon*, p. 987. **Hæmatopus osculans**, *Swinh. P. Z. S.* 1871, p. 405; *Salvad. Ucc. Born.* p. 321; *David et Oust. Ois. Chine*, p. 432.

Description.—*Male and female in summer.* The whole head, neck all round, upper breast, back, lesser and median wing-coverts, primary-coverts, tertiaries and scapulars black; a small mark under the eye white; tail white on the basal half, black on the terminal; edge of the wing and greater coverts white; primaries black, about an inch of the shaft of each feather near the tip white, the inner webs broadly edged with white at the base, the outer webs except those of the first five with an oval white streak; the earlier secondaries black edged with white, the later ones entirely white; tail-coverts white tipped with black; lower back, rump, lower breast, abdomen, vent, under tail-coverts, sides of the body, axillaries and under wing-coverts pure white.

Male and female in winter. Similar to birds in summer, but with a large crescentic white patch on the throat.

Young birds are similar to the adults in general appearance, but have the back and wings margined with brown, and they do not assume the white throat-band during their first winter.

Bill orange-red at the base, becoming yellow towards the tip; iris rich

reddish; edge of the eyelid orange-red; legs rich flesh-colour with a purplish-rose tinge. (*Dresser*.)

Length 18 inches, tail 4·5, wing 10, tarsus 2, bill from gape 3·7.

The above description is taken from a male bird shot in Arrakan and presented to me by Mr. Shopland, Port Officer of Akyab. It is in many respects intermediate between the English and the Australian species. In *H. ostralegus* the under wing-coverts and the upper tail-coverts are pure white and the shafts of the primaries are more or less white. In *H. longirostris* the under wing-coverts are a mixture of black and white in about equal proportions, the upper tail-coverts are tipped with black, and the shafts of the primaries are all black. In the Arrakan bird, the only one I have ever seen from Burmah, it will be observed that while the under wing-coverts are pure white, the upper tail-coverts are tipped with black, and that the shafts of the primaries are black except for about one inch of their length near the tip. *H. osculans* from China is similar to the Burmese bird in many respects, and occupies a somewhat intermediate position between it and *H. longirostris*, but it cannot, in my opinion, be maintained as a distinct species.

The Oystercatcher was received by Mr. Blyth from Arrakan, and more recently Mr. Shopland procured a specimen. Like the last species it is not unlikely to occur along the whole coast of Burmah in the winter.

It inhabits the whole of Europe and the coasts of Africa as far south as the equator; it also occurs on all the sea-coast line of Asia, extending to the Malay islands, where it meets the Australian *H. longirostris*.

The Oystercatcher is found chiefly on the sea-coast and the mouths of large rivers. It feeds on shell-fish, small crabs and marine insects; and it does not usually eat oysters and large bivalves, as its trivial name implies. It breeds in northern countries, laying three or four eggs in a depression in the shore close to high-water mark; the eggs are buff marked with blackish brown.

Family SCOLOPACIDÆ.

Genus HIMANTOPUS, *Briss.*

725. HIMANTOPUS CANDIDUS.

THE BLACK-WINGED STILT.

Charadrius himantopus, *Linn. Syst. Nat.* i. p. 255. **Himantopus candidus**, *Bonnat. Tabl. Encycl. et Méth., Orn.* i. p. 24; *Jerd. B. Ind.* ii. p. 704; *Hume, Ibis*, 1870, p. 146; *David et Oust. Ois. Chine*, p. 462; *Dresser, Birds Eur.* vii. p. 587, pl.; *Hume & Dav. S. F.* vi. p. 464; *Hume, S. F.* viii. p. 113; *Legge, Birds Ceylon*, p. 919; *Oates, S. F.* x. p. 241. **Himantopus intermedius**, *Bl. Cat. Birds Mus. As. Soc.* p. 265; *Hume, Nests and Eggs*, p. 589; *id. S. F.* i. p. 248, iii. p. 183. **Himantopus autumnalis**, *apud Bl. B. Burm.* p. 154.

Description.—*Male and female.* Crown, nape and ear-coverts smoky brown; back and sides of the neck and the upper back grey; middle of the back and the whole of the wings glossy black, tinged with metallic green; upper tail-coverts and tail grey; forehead and remainder of the plumage pure white; under surface of wing black.

Iris red; bill and claws black; legs lake-red. In the immature bird the legs are pale pink and the bill blackish brown.

Length 15 inches, tail 3·4, wing 10, tarsus 4·9, bill from gape 2·8. The female is rather smaller.

The plumage of this species varies a good deal, and the causes of the variations do not appear to be well understood. I have described above the birds usually met with in Burmah in the winter months. According to Major Legge, and in my experience also, the sexes are alike. According to Mr. Dresser the sexes differ, the male having the hind crown, nape and hind neck black intermixed with white, the wings and back black; the female having the hind crown and nape blackish grey, the back, scapulars and inner secondaries dull blackish brown. I am of opinion, however, that the sexes are alike, and that the variations are due to age and season.

The Black-winged Stilt appears to be generally distributed over Pegu and Arrakan, and Capt. Wardlaw Ramsay observed it on the Karin hills east of Tonghoo. In Tenasserim it is confined to the flat portions of the northern half of the Division.

It occurs throughout the southern half of Asia, the whole of Africa and a considerable portion of Europe, being migratory in some parts, resident in others.

This peculiar-looking bird is nowhere very abundant in Burmah, visiting

the Province only in the winter months. I have generally seen it in small flocks of four or five individuals on the banks of the larger rivers and creeks, but it also frequents marshes and paddy-fields. It feeds in the water or on its edges, picking up small insects from the mud with its long bill. It breeds in various parts of India and Ceylon in June and July, laying four eggs either on the bare ground or in a nest made of a few pieces of grass; the eggs are buff blotched with black.

H. leucocephalus, from the Australian region, has the whole head white and the hind neck black; otherwise it resembles *H. candidus*.

Genus SCOLOPAX, *Briss.*

726. SCOLOPAX RUSTICULA.

THE WOODCOCK.

Scolopax rusticola, *Linn. Syst. Nat.* i. p. 243; *Jerd. B. Ind.* ii. p. 670; *Beavan, Ibis*, 1868, p. 391; *Bl. B. Burm.* p. 157; *Anders. S. F.* iii. p. 356; *Dresser, Birds Eur.* vii. p. 615, pl.; *Hume & Dav. S. F.* vi. p. 458; *Hume, S. F.* viii. p. 112; *Bingham, S. F.* viii. p. 196; *Scully, S. F.* viii. p. 353; *Hume & Marsh. Game Birds*, iii. p. 311, pl. *Scolopax rusticula*, *David et Oust. Ois. Chine*, p. 475; *Legge, Birds Ceylon*, p. 806; *Oates, S. F.* x. p. 238.

Description.—*Male and female.* Forehead and cheeks white mottled with brown; a broad brown stripe from the gape to the eye and another narrower one from the hinder part of the cheeks to the nape; crown and nape crossed by three broad bands of black and two of ochraceous chestnut; upper plumage and wing-coverts a mixture of rufous, grey and brown, the scapulars and back also blotched with deep black; tail black with small rufous notches on the outer webs, the tips broadly ashy; quills brown, notched on the edge of both webs with rufous; chin and throat whitish; the whole under plumage pale rufescent grey narrowly cross-barred with brown; the under tail-coverts also streaked with black; the lower throat and sides of the neck tinged with deep chestnut.

Bill dull flesh-colour, becoming dark brown towards the tip; legs dull greyish flesh-colour or flesh-brown; iris blackish brown. (*Dresser.*)

Length about 14 inches, tail 3.5, wing 7 to 8, tarsus 1.4, bill from gape about 3.5. The female is rather larger than the male.

The Woodcock occurs in Burmah in the winter months, but is rare and seldom met with. It seems rather commoner near Tonghoo than elsewhere in the Province, for I heard of a gentleman at that station having killed seven birds in one morning. This is, I imagine, an unusual circumstance.

There are a few instances on record of the occurrence of the Woodcock in Tenasserim.

It inhabits the whole of Europe, North Africa, and the greater portion of Asia eastwards to Japan and China, and southwards to Ceylon and Burmah. It has not yet been recorded from Cochin China, Siam, or the Malay peninsula.

The Woodcock frequents thick cover during the day and comes out more into the open at night, which is its usual time for feeding. Cover, water and soft swampy soil, into which it can thrust its long bill in search of worms, are indispensable to the Woodcock. The stragglers that visit Burmah will most probably be found on the banks of streams in the lower ranges of hills, or where these join the plain.

In the Himalayas the Woodcock breeds in June; in Europe earlier, in April or May. The nest is merely a depression in the soil; and the eggs, four in number, are buff blotched with reddish brown.

Genus GALLINAGO, *Leach*.

727. GALLINAGO CŒLESTIS.

THE COMMON SNIPE.

Scolopax gallinago, Linn. *Syst. Nat.* i. p. 244; *Anders. Yunnan Exped.* p. 681.

Scolopax cœlestis, Frenzel, *Beschr. der Vögel und ihrer Eier in der Gegend von Wittenberg*, p. 58. *Gallinago scolopacinus*, Bonap. *Comp. List Birds Eur. and N. Amer.* p. 52; *Jerd. B. Ind.* ii. p. 674; *Hume, Nests and Eggs*,

p. 586; *id. S. F.* ii. pp. 294, 295; *Parker, S. F.* ii. p. 335; *Hume, S. F.* iii. p. 182; *Bl. B. Burm.* p. 156; *Butler, S. F.* v. p. 212; *David et Oust. Ois. Chine*, p. 478; *Hume & Dav. S. F.* vi. p. 459; *Legge, Birds Ceylon*, p. 820. *Gallinago gallinaria* (Gm.), *Cripps, S. F.* vii. p. 302; *Hume, S. F.* viii. p. 112; *Bingham, S. F.* viii. p. 196; *Scully, S. F.* viii. p. 355; *Oates, S. F.* x. p. 239. *Gallinago cœlestis*, *Dresser, Birds Eur.* vii. p. 641, pl.; *Hume & Marsh. Game Birds*, iii. p. 359, pl.

Description.—*Male and female*. Crown of the head black with a fulvous streak over the median line; a blackish streak from the bill to the eye, above and below which the feathers are pale fulvous; chin whitish; throat and sides of the head and neck fulvous streaked with black; breast and sides of the body fulvous barred with black; abdomen and vent white; under tail-coverts fulvous streaked with brown; under wing-coverts barred indistinctly with black and white; tail black, the end rufous mottled with black; upper plumage black, edged and streaked with rich fulvous and chestnut; wing-coverts black barred with fulvous; quills dark brown, narrowly edged with whitish.

Bill fleshy brownish green for two thirds its length from the base, remainder horny brown; iris very dark brown; legs and feet brownish green.

Length 10·5 inches, tail 2·4, wing 5, tarsus 1·2, bill from gape 2·3. The female is of about the same size.

The Common Snipe of Europe is fairly abundant throughout Pegu, Arrakan and the northern half of Tenasserim; further south it becomes rare, and in the Malay Peninsula it can be considered only a straggler.

It inhabits the whole of Europe and a considerable portion of North Africa, and it extends over the whole continent of Asia down to Ceylon on the one hand and to China on the other. It ranges to the Philippine Islands, and must necessarily occur in Siam and Cochin China; but it has not yet been recorded from these countries, where doubtless it is very rare.

This species and the next are likely to be confounded unless special attention is paid to the differences between them.

The first and most unfailing point of difference is in the tail. In *G. caelestis* the tail is composed of twelve, fourteen or sixteen ordinary soft feathers; in *G. stenura* there are ten soft feathers and on either side of these a number, varying from five to nine, of narrow rigid feathers with apparently no webs. These narrow feathers require to be looked for; they do not strike the eye, as they are more or less hidden by the tail-coverts and are moreover very close together. A second point of difference lies in the coloration of the lower surface of the wing. In the Pintail Snipe the axillaries and the under wing-coverts are very distinctly and regularly barred with dark brown throughout. In the Common Snipe these same parts are indistinctly barred, and there is always a patch on the coverts left quite white and unbarred. Mr. Hume points out one or two additional differences which it may be well to quote: in the Common Snipe the outer web of the first primary is white or nearly so, and the secondaries are broadly tipped with white; in the Pintail the outer web of the first primary is of the same colour as the inner, and the secondaries are only margined with albescent or brownish white. In the two birds the bills vary in shape, that of the Common Snipe being dilated at the tip and furnished with very numerous pores, whereas the bill of the Pintail is not dilated at the tip and there are comparatively few pores.

The Common Snipe arrives rather later than the next species, and few birds are shot before the end of September. It leaves Burmah about the end of March, but it is difficult to state the exact date.

This Snipe is almost invariably found in swamps and paddy-fields, places where the water is shallow and patches of mud show up at frequent intervals. Fields where the paddy is eight inches or a foot high and the water partially dried up, as is the case in October, are favourite Snipe-ground;

but of course a great deal depends on whether the soil is suitable for worms, the chief food of this Snipe. Before attempting to struggle through a muddy paddy-field in Burmah, it is advisable to examine the ground for traces of the small holes the Snipe makes in searching for worms, and if none are visible, it is generally a sign that there are few or no Snipe in the vicinity.

In Europe the Common Snipe deposits four eggs in a depression in the ground in April, amongst rushes, grass or heather. In Cashmeer it lays in May. The eggs are buff varying to greenish, blotched with various shades of brown.

728. GALLINAGO STENURA.

THE PINTAIL SNIPE.

*Scolopax stenura**, Kuhl, Bonap. *Osserv. sulla sec. ediz. Regn. Anim. Cuv. Monog. Scolopax*, p. 121. *Scolopax horsfieldii*, J. E. Gray, *Zool. Misc.* p. 2. *Gallinago stenura*, Jerd. *B. Ind.* ii. p. 674; G. F. L. Marshall, *S. F.* i. p. 423; Cripps, *S. F.* i. p. 496; Hume, *S. F.* ii. p. 294; Parker, *S. F.* ii. p. 335; *Salvad. Ucc. Born.* p. 334; Bl. B. *Burm.* p. 156; Armstrong, *S. F.* iv. p. 340; Butler, *S. F.* v. p. 212; David et Oust. *Ois. Chine*, p. 478; Hume & Dav. *S. F.* vi. p. 459; Cripps, *S. F.* vii. p. 301; Hume, *S. F.* viii. p. 112; Legge, *Birds Ceylon*, p. 816; Scully, *S. F.* viii. p. 354; Bingham, *S. F.* viii. p. 196, ix. p. 196; Oates, *S. F.* x. p. 238. *Gallinago horsfieldii*, Hume, *S. F.* iii. p. 182.

Description.—*Male and female.* Similar in coloration and size to *G. caelestis*, differing in the characters pointed out above.

The Pintail Snipe is universally distributed over Burmah and excessively common during the cold season.

In the winter months it is found throughout India and Ceylon, the Indo-Burmese countries, China, Cochin China, Siam, the Malay peninsula and many of the islands. In summer it retires to Central Asia and Southern and Eastern Siberia, where it breeds.

The Pintail Snipe arrives in Burmah about the middle of August, and by the first of September the whole Province is overrun by them. It is excessively abundant, and I doubt if any other country in the world can afford such excellent Snipe-shooting as Burmah in the months of September and October.

In November large numbers of this Snipe depart, and by January com-

* There has been considerable discussion regarding the derivation of this word, all based on the supposition that Bonaparte used the word "*sthenura*." A reference to the original description would have rendered this discussion unnecessary, for Bonaparte spells the word "*stenura*" in the work quoted.

paratively few are left. This is but natural, for the country dries up rapidly after the cessation of the rains, and the available amount of feeding-ground is consequently much reduced. I have shot a single specimen of this Snipe as late as the 1st of May.

This Snipe differs in habits very markedly from the Common Snipe, for although it is found in great abundance in paddy-fields, I think that perhaps more birds will be found on comparatively dry grass-land. Waste land slightly swampy and covered with tufts of coarse grass which have been eaten down rather short by cattle attracts vast numbers of this Snipe. The reason for this appears to be that the Pintail's diet is not exclusively worms, but perhaps more usually insects, grubs, small shells and vegetable matter, in searching for which it is not obliged to insert its bill into the ground. During the hot weather the Pintail is found in grass-land which is not only dry but positively baked. Such is the case in the compound of the bungalow at Pagagalay, on the Pegu and Tonghoo road, where during March and April two or three birds can be invariably flushed out of the grass growing quite close to the house.

The breeding-haunts of the Pintail are known to lie in Siberia, but no one has yet apparently taken the eggs.

G. megal from China is allied to this species, differing chiefly in having fewer stiff lateral tail-feathers, and these are broader and more rufescent.

729. GALLINAGO GALLINULA.

THE JACK SNIFE.

Scolopax gallinula, Linn. *Syst. Nat.* i. p. 244. *Gallinago gallinula*, Jerd. *B. Ind.* ii. p. 676; *Hume, S. F.* iii. p. 182; *Bl. B. Burm.* p. 157; *David et Oust. Ois. Chine*, p. 479; *Dresser, Birds Eur.* vii. p. 653; *Hume & Dav. S. F.* vi. p. 459; *Cripps, S. F.* vii. p. 302; *Hume, S. F.* viii. p. 112; *Scully, S. F.* viii. p. 356; *Legge, Birds Ceylon*, p. 828; *Hume & Marsh. Game Birds*, iii. p. 373, pl.; *Hume, S. F.* x. p. 239, note.

Description.—*Male and female.* Crown and nape deep black, some of the feathers edged with rufous; a broad buff band on each side the crown, extending from the upper mandible over the eye to the nape, with a narrow black line running down its middle; a broad dark brown streak from the bill along the lores to the eye; back and scapulars glossy greenish black with lilac and purple reflections, the scapulars with the outer webs chiefly buff, forming two broad bands down the upper plumage; tail dark brown edged with rufous; wing-coverts black edged with whitish; quills black, the secondaries whitish at the tips; tertiaries mingled black and rufous; chin and upper throat white; lower throat, breast and sides of the neck

brown, tinged with rufous and mottled with whitish; remainder of lower plumage white; axillaries white mottled with pale brown.

Bill bluish at the base, black towards the tip; irides deep brown; legs and feet greenish grey. (*Jerdon.*)

Length 8 inches, tail 2, wing 4·2, tarsus ·9, bill from gape 1·7. The female is of the same size.

The Jack Snipe is a very rare visitor to Burmah, and I do not know of more than three or four instances of its occurrence in this country. I have never personally seen a specimen shot in Burmah; but Mr. Hume notes one killed near Rangoon, one at Tonghoo, and another near the mouth of the Bassein Creek. On the whole the sportsman in Burmah may congratulate himself when he bags a Jack Snipe, for it is no doubt an excessively rare bird.

In summer this Snipe inhabits the more northern portions of Europe and Asia; in winter it migrates south, being then found throughout Europe, the northern portion of Africa, and more or less over the whole of Asia as far south as Ceylon and eastwards to Formosa.

The Jack Snipe will of course only be found in Burmah in the winter months. It affects much the same sort of ground as the Common Snipe, but is more restricted in its choice of locality, being fonder of dense cover, such as that which grows up in the neglected corners of fields.

In Northern Europe the Jack Snipe breeds in June, laying four eggs in a depression in the ground, which is lined with a little grass and dead leaves.

The small size of this Snipe coupled with its rich coloration and its tail of twelve soft feathers, of which the central two project beyond the others a short distance, will enable any one, however inexperienced, to identify it at once.

G. nemoricola, the Wood-Snipe, was observed by Mr. Davison in the south of Tenasserim (S. F. vi. p. 459); but as he did not actually secure the bird he saw, there is a possibility of a mistake, and I consequently do not insert it in my work, but content myself with giving Dr. Jerdon's account of its plumage*.

*

GALLINAGO NEMORICOLA.

"Top of the head black, with rufous-yellow longish markings; upper part of back black, the feathers margined with pale rufous-yellow, and often smeared bluish; scapulars the same, some of them with zigzag markings; long dorsal plumes black with zigzag marks of rufous-grey, as are most of the wing-coverts; winglet and primary-coverts dusky black faintly edged whitish; quills dusky; lower back and upper tail-coverts barred reddish and dusky; tail with the central feathers black at the base, chestnut with dusky bars towards the tip; laterals dusky with whitish bars; beneath the chin white, the sides of the neck ashy smeared with buff and blackish, breast ashy smeared with buff and obscurely barred; the rest of the lower plumage, with the thigh-coverts, whitish with numerous dusky bars

Genus RHYNCHÆA, Cuv.

730. RHYNCHÆA CAPENSIS.

THE PAINTED SNIPE.

Scolopax capensis, Linn. *Syst. Nat.* i. p. 246. *Rallus benghalensis*, Linn. *Syst. Nat.* i. p. 263. *Rhynchæa bengalensis*, Jerd. *B. Ind.* ii. p. 677; Hume, *Nests and Eggs*, p. 586; *Salvad. Ucc. Born.* p. 335; *Bl. B. Burm.* p. 157; *Butler, S. F.* iv. p. 15, v. p. 223; *David et Oust. Ois. Chine*, p. 480; *Wardlaw Ramsay, Ibis*, 1877, p. 469; *Anders. Yunnan Exped.* p. 683; *Hume & Dav. S. F.* vi. p. 459; *Cripps, S. F.* vii. p. 302; *Hume, S. F.* viii. p. 112; *Legge, Birds Ceylon*, p. 800; *Bingham, S. F.* ix. p. 197; *Hume & Marsh. Game Birds*, iii. p. 381, pl.; *Oates, S. F.* x. p. 239.

Description.—*Male.* A broad band along the centre of the head, the feathers round and behind the eye buff; crown blackish, the feathers narrowly margined with buffy white; back of the neck ashy brown, indistinctly barred with blackish; back, scapulars and tertiaries olivaceous, banded with black and glossed with green, the outer webs of the scapulars broadly edged with buff, forming two stripes which are continued over the shoulders to the sides of the neck; rump bluish ashy barred with blackish; upper tail-coverts the same, but with large buff spots on both webs; tail bluish ashy, narrowly barred with black and broadly with buff; upper wing-coverts pale buff, shaded with brown and barred with black; quills bluish ashy with large oval buff spots, the primaries with black patches on the outer webs, the secondaries black towards their bases; chin whitish; throat, breast and sides of the neck brown mottled with white, the lower part of the breast with several indistinct blackish bars; remainder of the lower plumage white.

The *female* has a ring round the eye and a streak behind it white; sides of the face, throat and the whole neck ferruginous; the wing-coverts olive, regularly but very narrowly banded with black; the upper scapulars pointed and pure white; the breast blackish, bounded below by a broad white band extending up the sides of the shoulders; the other parts much as in the male.

Iris olive-brown; bill and legs olive-brown; claws horn-colour.

Length 10 inches, tail 1·7, wing 5·3, tarsus 1·8, bill from gape 2. The female is rather larger.

lower tail-coverts rufescent with dusky marks, and the under wing-coverts barred black and whitish.

“Bill reddish brown, paler at the base beneath; irides dusky brown; legs plumbeous green. Length $12\frac{1}{2}$ to 13 inches, extent 18, wing $5\frac{3}{4}$, tail $2\frac{1}{2}$, bill at front $2\frac{5}{8}$, tarsus $1\frac{3}{4}$, middle toe $1\frac{1}{8}$.”

This bird varies a good deal in colour according to age; but there is little likelihood of the Painted Snipe being mistaken for any other bird, and it therefore seems unnecessary to describe the variations, which are unimportant. The above descriptions are taken from adults.

The Painted Snipe is a somewhat rare species in Burmah. Mr. Blyth gives it from Arrakan. I observed it in Pegu only in the marshy plains near the Canal, where it was not uncommon at the end of the rains; but Captain Wardlaw Ramsay procured it at Rangoon and Yeytho. Mr. Davison did not observe it in Tenasserim; but Capt. Bingham got it at Moulmein, and he states that it occurs in the Thoungyeen valley.

It is found throughout the southern half of Asia, ranging down to Ceylon and down the Malay peninsula and Siam to the Philippines, Borneo, Java and Sumatra. It is now generally admitted that the Painted Snipe of Asia is identical with the one occurring over a considerable portion of Africa and Madagascar. In the Australian region it is replaced by an allied species, *R. australis*.

The Painted Snipe is probably a permanent resident in Burmah; but I have observed it too seldom to be sure of the fact. It frequents marshy ground where there is thick grass and cover, and is usually seen in small flocks of four or five individuals. I have never met with the nest; but Capt. Wardlaw Ramsay found indications of the bird breeding in September. In India it makes a small nest of rushes on wet ground, and lays four eggs, similar to those of the Snipes.

Genus LIMICOLA, *Koch*.

731. LIMICOLA PLATYRHYNCHA.

THE BROAD-BILLED SANDPIPER.

Tringa platyrincha, *Temm. Man. d'Orn.* p. 398. *Tringa platyrhyncha*, *Jerd. B. Ind.* ii. p. 692; *Hume, S. F.* i. p. 244; *Bl. B. Burm.* p. 156; *Armstrong, S. F.* iv. p. 343. *Limicola platyrhyncha*, *Salvad. Ucc. Born.* p. 322; *Dresser, Birds Eur.* viii. p. 3, pl.; *Hume & Dav. S. F.* vi. p. 461; *Hume, S. F.* viii. p. 113; *Legge, Birds Ceylon*, p. 896; *Oates, S. F.* x. p. 240.

Description.—*Winter plumage.* Lores ashy brown, surmounted by a broad white band continued as a supercilium to the end of the ear-coverts; forehead, crown, hind neck, back and scapulars ashy brown, each feather with a darker shaft-streak and indistinctly edged paler; rump and upper tail-coverts blackish brown, the feathers edged paler; some of the lateral upper tail-coverts whitish; tail brown, the feathers narrowly margined with

whitish, and the shafts of the laterals white; lesser wing-coverts almost uniform blackish brown; median and greater coverts dark brown, most of the feathers edged with white; quills dark brown, the shaft of the first primary whitish, those of the others hair-brown; tertiaries paler brown tinged with ashy; cheeks, ear-coverts and sides of the neck whitish streaked with brown; the whole lower plumage and axillaries white, the sides of the breast streaked with brown, a few streaks extending to the middle of the breast; under wing-coverts next the margin dark brown edged with white, the others pure white.

In summer the superciliary streaks are marked with brownish; the lores are nearly black; the ear-coverts dark brown; the throat, breast and neck all round boldly streaked with brown with a tinge of rufous; the crown and forehead nearly black, some of the lateral feathers edged with rufous or white; the back, rump, upper tail-coverts, scapulars and tertiaries black, each feather fringed with rufous or white, or an intermixture of the two; the central tail-feathers nearly black, edged on the outer web with rufous; the wings and their coverts much the same as in winter; abdomen and lower plumage white, the sides of the body spotted with brown.

Iris dark brown; bill brown, tinged with olive; legs olive-brown; claws horny brown.

Length 6·75 inches, tail 1·5, wing 4·2, tarsus ·9, bill from gape 1·18. The bill is longer than the head, straight except at the tip, where it is slightly curved downwards, and it is very stout throughout.

An allied species (*L. sibirica*) inhabits China and Eastern Siberia; it differs in having the crown and entire upper parts in summer plumage margined with bright rufous. In winter the two species appear to be undistinguishable. The only specimen of this type of Sandpiper which I ever shot in Burmah is in winter plumage; but it agrees so well with Indian examples of *L. platyrhyncha* that I am disposed to consider it of this species. *L. sibirica* is quite as likely, however, to occur in British Burmah.

Mr. Blyth records this Sandpiper from Arrakan; I procured it near the town of Pegu; and Dr. Armstrong found it abundant in the Irrawaddy Delta, and he also met with it at Amherst in Tenasserim. It will therefore in all probability be found common along the entire sea-coast and all the tidal rivers of the Province in the winter.

It is spread, according to season, over the whole of Europe, North Africa and Asia, extending down the Malay peninsula into the islands of the Archipelago. The range of this and the allied species *L. sibirica* in Asia is not known with certainty, and must perhaps always remain in doubt with regard to those countries where these birds are found only in winter plumage, for at this season the two species, as before remarked, would appear to be undistinguishable.

This Sandpiper frequents sea-coasts and tidal rivers, but is also said to come inland and to be found along the banks of lakes and ponds. In Europe it breeds in May in marshes.*

Genus TRINGA, *Briss.*

732. TRINGA MINUTA.

THE LITTLE STINT.

Tringa minuta, *Leisl. Nacht. zu Bechst. Naturg. Deutsch.* i. p. 74; *Jerd. B. Ind.* ii. p. 690; *Dresser, Birds Eur.* viii. p. 29, pl.; *Hume, S. F.* i. p. 242, ii. p. 298; *Legge, S. F.* i. p. 491; *Armstrong, S. F.* iv. p. 342; *Hume & Dav. S. F.* vi. p. 461; *Hume, S. F.* viii. p. 113; *Legge, Birds Ceylon*, p. 884; *Oates, S. F.* x. p. 240.

Description.—*Winter plumage.* Forehead, cheeks, superciliary streaks and the entire lower plumage white, the breast with a few indistinct brown mottlings; crown, nape, hind neck, back, scapulars, lesser and median wing-coverts ashy, the feathers with darker broad shaft-streaks; rump and upper tail-coverts blackish brown, the feathers edged paler; greater wing-coverts brown, broadly tipped with white; quills brown, the shaft of the first primary white, those of the others whitish except at the tips and bases; the secondaries distinctly edged with white; tertiaries paler brown edged with grey; central tail-feathers brown edged with fulvous, the others very pale uniform brown; sides of the head and neck grey streaked with brown; axillaries and under wing-coverts white.

In summer the forehead and supercilia are dull white; the crown, nape, back, scapulars, tertiaries, central tail-feathers and the greater part of the upper wing-coverts are blackish, each feather broadly edged with rufous; rump and upper tail-coverts black; tail-feathers, except the central pair, pale brown as in winter; primaries, secondaries and greater wing-coverts as in winter; sides of the head mingled rufous and brown; sides of the neck and the breast pale rufescent, the feathers with dusky centres; chin, throat and remainder of lower plumage white.

* None of the Waders about to be dealt with are likely to be found breeding in Burmah. The mode of nidification of all is very similar: they lay three or four eggs on the ground either on the bare soil or in a slight depression lined with grass, generally in marshy localities or not far from the sea-shore. The eggs are buff or stone-colour, blotched or otherwise marked with brown of various shades; in most cases they are sharply pointed; and they are deposited in the nest with the small ends pointing inwards.

Iris dark brown; bill black; legs and toes dark plumbeous brown; claws horn-colour.

Length 6 inches, tail 1·7, wing 3·8, tarsus ·8, bill from gape ·75, middle toe and claw not exceeding ·8. The female is of much the same size.

This species may be distinguished from the next by the shortness of its toes, and by the colour of the shafts of the primaries, the first of which is white throughout and the others with a considerable portion white. In *T. subminuta* the toes are long, the central one including the claw measuring nearly an inch in length; and the shafts of all the primaries are brown, except that of the first quill, which is albescent.

From *T. temmincki* it may be recognized by the outer tail-feathers being pale brown, not pure white.

T. ruficollis (*T. albescens*), from China and Eastern Asia generally, in winter plumage resembles *T. minuta* so closely that the two cannot be discriminated in all cases. *T. ruficollis*, however, on the whole appears to have a shorter tarsus, the length seldom or never exceeding ·7 inch, whereas in *T. minuta* the tarsus usually measures ·8. In summer plumage *T. ruficollis* has the face, neck and chest rufous and the breast spotted with dark brown.

The Little Stint is by no means a common species in Burmah, for this country appears to be its extreme southern and eastern limit. Mr. Hume has received it from Tonka, Jurrum and Klang in the Malay peninsula; but Dr. Tiraud does not include it in his list of the birds of Cochin China, and its occurrence in the countries of South-eastern Asia must be looked upon as more or less accidental. In Burmah I procured it once or twice near Kyeikpadein, and Dr. Armstrong found it common on the coast at the mouths of the Irrawaddy river; but Mr. Davison found it rare at Amherst and Mergui in Tenasserim.

It occurs, according to season, throughout Europe and nearly the whole of Africa, extending through Asia as far east as Burmah. It has not been met with in China, where the allied *T. albescens* occurs. It breeds in Siberia and in the extreme north of Europe.

This species is found in flocks of considerable numbers, and frequents not only the sea-coast, but also paddy-fields, the edges of ponds and the banks of rivers.

733. TRINGA SUBMINUTA.

THE LONG-TOED STINT.

Tringa subminuta, *Midd. Sib. Reise, Vög.* p. 222, Taf. xix. f. 6; *Legge, Birds Ceylon*, p. 889. *Tringa damacensis* (*Horsf.*), *apud Hume, S. F.* i. p. 243, iii. p. 182. *Tringa salina* (*Pall.*), *apud Legge, S. F.* i. p. 491; *Dresser, Birds Eur.* viii. p. 33; *Bl. & Wald. B. Burm.* p. 156. *Actodromas salina* (*Pall.*), *apud Salvad. Ucc. Born.* p. 324. *Tringa ruficollis* (*Pall.*), *apud Wald. Trans. Zool. Soc.* ix. p. 234; *David et Oust. Ois. Chine*, p. 472; *Hume & Dav. S. F.* vi. p. 461; *Hume, S. F.* viii. p. 113; *Oates, S. F.* x. p. 240.

Description.—*Summer plumage.* Forehead, top of head and nape dark brown, each feather with an edging of rich rufous on the terminal half; lores, cheeks and ear-coverts the same; an albescent patch in front of the eye above the lores; the upper part of the throat pure white; lower throat streaked with small marks of pale rufous-brown; sides of throat, the neck, upper breast and sides of body pale rufous-brown, each feather with a central dark brown streak; the rufous more pronounced on the neck than elsewhere; lower breast, abdomen and vent pure white; under tail-coverts white, each feather with a long, narrow, central brown streak; thighs rufescent; upper neck mixed brown and pale rufous; whole upper plumage, including the scapulars and tertiaries, rich blackish brown, each feather broadly tipped with bright rufous; rump and uppertail-coverts glossy black, a few of the feathers of the latter obsoletely tipped white; centre tail-feathers black edged with rufous; the others pale brown, tipped and margined internally with white; axillaries white, with a little brown at their bases; under wing-coverts pale brown edged with white; shaft of first quill sordid whity brown, those of the others dark hair-brown; primaries and secondaries dark brown, all tipped with white except the first six primaries; all the primaries except the first three with a median narrow margin of white on the outer web; upper coverts brown, all more or less tipped and margined with dull white.

In winter it resembles *T. minuta* in general appearance, but the upper plumage is darker; the forehead and face where white in *T. minuta* are streaked with brown in *T. subminuta*; the greater wing-coverts and secondaries are very narrowly tipped with white; and the sides of the neck and the chest are thickly marked with brown streaks.

Iris brown; bill olive-brown; legs and toes pale brown; claws nearly black.

Length 6·2 inches, tail 1·4, wing 3·7, tarsus ·8, middle toe and claw nearly an inch, bill from gape ·75. The female is of the same size.

This Stint may be recognized by the great length of its toes, the middle one including its claw measuring frequently little short of an inch in length.

It resembles *T. minuta* in having the outer tail-feathers brown, but differs in having the shafts of all the primaries brown except that of the first quill, which is dull white. From *T. temminckii* it may be separated by the colour of its outer tail-feathers as well as by its long toes.

I agree with Major Legge in thinking *T. subminuta* the proper name for this species. *T. ruficollis* and *T. salina* of Pallas most probably refer to the species usually passing current as *T. albescens*, and Horsfield's name *T. damacensis* is of doubtful application.

The Long-toed Stint is very abundant throughout Pegu in the winter months, arriving as early as the 7th of August, at which date I have shot it in full summer plumage. Mr. Blyth records it from Arrakan; and Mr. Davison procured it in Tenasserim, where, however, it does not appear to be very abundant.

It is found, according to season, from North-eastern Siberia, Amoorland and Japan, through China and Mongolia to Burmah, extending on the west to Bengal, the eastern coast of India and Ceylon, and ranging southwards to the Malay peninsula, Java, Borneo, Celebes and the Philippines.

This Stint appears to be confined to inland waters, frequenting the banks of ponds and more usually flooded paddy-fields and pools of water. I have invariably met with it in large flocks of twenty individuals or more. Judging from the early date of its arrival in Burmah, its breeding-haunts cannot be very far north.

734. TRINGA TEMMINCKII.

TEMMINCK'S STINT.

Tringa temminckii, *Leisl. Nacht. zu Bechst. Naturg. Deutsch.* i. p. 63; *Jerd. B. Ind.* ii. p. 691; *Dresser, Birds Eur.* viii. p. 45, pl.; *Hume, S. F.* i. p. 244, iii. p. 183; *Bl. B. Burm.* p. 156; *David et Oust. Ois. Chine*, p. 473; *Anders. Yunnan Exped.* p. 680; *Hume & Dav. S. F.* vi. p. 461; *Hume, S. F.* viii. p. 113; *Scully, S. F.* viii. p. 357; *Legge, Birds Ceylon*, p. 892; *Oates, S. F.* x. p. 240. *Actodromas temminckii*, *Salvad. Ucc. Born.* p. 324.

Description.—*Winter plumage.* The whole upper plumage from the forehead to the tail-coverts, the sides of the face and of the neck, and the breast uniform pale ashy brown, the shafts only of the feathers being darker; wing-coverts brown tipped with ashy, the greater series tipped with white; quills brown, the shaft of the first primary white, those of the others hair-brown; secondaries tipped with white; central pair of tail-feathers dark brown, the next paler, the next two pairs albescent, and the outer two pairs pure white; forehead and feathers in front of the eye whitish; chin, throat and all the lower plumage except the breast white.

In summer the whole upper plumage is greyish brown with blackish centres to the feathers, which are also edged with pale rufous; upper tail-coverts darker; lesser wing-coverts dark brown, the median brown edged with pale rufous, and the greater dark brown tipped with white; wings and tail much as in winter; sides of the head and neck, lower throat and breast streaked with fulvous and brown; chin and remainder of lower plumage white.

Bill blackish; legs brown; iris dark brown.

Length 6 inches, tail 2, wing 3·8, tarsus ·7, bill from gape ·6, middle toe and claw under ·8. The female is of about the same size.

This Stint may always be recognized by the colour of its tail-feathers, the outermost two pairs of which are pure white and the next two more or less albescent.

Temminck's Stint is comparatively rare in British Burmah. I procured it at Thayetmyo and also at Kyeikpadein; Capt. Wardlaw Ramsay observed it at Tonghoo; Mr. Blyth records it from Arrakan; and Mr. Davison met with it in numerous places in Tenasserim.

It occurs, according to season, throughout Europe and Northern Africa, and it is found over the whole continent of Asia from Siberia down to Ceylon, ranging eastwards to China and down to Borneo. It breeds in Siberia and in North Europe.

This Stint visits Burmah in the winter months; but I have observed it so seldom that I am unable to say at what time it arrives and departs. Its habits are similar to those of the preceding species.

735. TRINGA CRASSIROSTRIS.

THE THICK-BILLED STINT.

Tringa crassirostris, Temm. et Schleg. *Faun. Jap.*, *Aves*, p. 107, pl. lxiv.; *Hume*, *S. F.* i. p. 240; *Salvad. Ucc. Born.* p. 325; *Wald. Ibis*, 1874, p. 147; *Armstrong*, *S. F.* iv. p. 341; *David et Oust. Ois. Chine*, p. 468; *Hume*, *S. F.* viii. p. 113; *Oates*, *S. F.* x. p. 240.

Description.—*Winter plumage.* Forehead, crown, nape, sides of the head and of the neck greyish white, densely streaked with dark brown; fore neck and breast white, with broader streaks of dark brown; remainder of the lower plumage, under wing-coverts and axillaries white, the latter with a few brown marks, the sides of the body with brown streaks; hind neck, back, scapulars and tertiaries brown, with darker shaft-streaks; wing-coverts brown with dark shaft-streaks, and each feather margined with whitish; greater coverts and tertiaries very broadly edged with white;

primaries dark brown with the shafts white ; rump and upper tail-coverts brown, each feather broadly edged with white ; tail pale brown.

In summer the upper plumage is spotted and bordered with rufous ; the rump pure white ; the breast dark brown, each feather with a white transverse band about the middle.

Irides dark brown ; bill dusky black, paler at base of lower mandible ; legs and feet greenish dusky. (*Armstrong.*)

Length 12 inches, tail 2·7, wing 7·1, tarsus 1·4, bill from gape 1·8, middle toe and claw 1·15.

A few years ago Mr. Shopland sent me a specimen of this Stint which he shot on the Arrakan coast near Akyab in January. Dr. Armstrong procured one specimen in the Irrawaddy Delta. It is apparently rather rare in Burmah ; but it will probably be found along the entire sea-coast in the winter months.

It has a wide range, being found in Japan and Eastern Siberia in summer, migrating in winter as far south as Australia, and eastwards to Seinde. It has also been found in the Andaman and Laccadive Islands.

This Stint appears to be entirely maritime ; but nothing of particular interest is recorded about its habits.

Genus PELIDNA, *Cuv.*

736. PELIDNA SUBARQUATA.

THE CURLEW STINT.

Scolopax subarquata, *Güld. Nov. Comm. Petrop.* xix. p. 471, t. xviii. *Tringa subarquata*, *Jerd. B. Ind.* ii. p. 689 ; *Bl. B. Burm.* p. 156 ; *Armstrong, S. F.* iv. p. 342 ; *David et Oust. Ois. Chine*, p. 472 ; *Dresser, Birds Eur.* viii. p. 59, pl. ; *Hume & Dav. S. F.* vi. p. 460 ; *Hume, S. F.* viii. p. 113 ; *Legge, Birds Ceylon*, p. 879 ; *Oates, S. F.* x. p. 240. *Pelidna subarquata*, *Salvad. Ucc. Born.* p. 322.

Description.—*Winter plumage.* The whole upper plumage, wing-coverts, scapulars and tertiaries ashy brown, the shafts of the feathers blackish, the margins narrowly greyish white ; the greater wing-coverts more broadly edged with white ; upper tail-coverts white ; tail brown, edged with white ; primaries brown, the shaft of the first primary chiefly white, those of the other feathers brown, turning white towards the tip only ; secondaries brown ; sides of the neck, fore neck and breast white streaked with brown ; chin, throat and remainder of lower plumage, axillaries and under wing-coverts white.

In summer the plumage is rich rufous throughout, variegated by black above, and the feathers of the abdomen are margined with dull white.

Bill black ; iris brown ; legs and toes greenish brown.

Length 8 inches, tail 2·1, wing 5·1, tarsus 1·2, bill from gape 1·6. The bill is curved downwards throughout its entire length.

The Curlew Stint is tolerably common in the low tidal portions of the plains between the Pegu and Sittang rivers ; Dr. Armstrong procured it in the Irrawaddy Delta ; Mr. Blyth gives it from Arrakan ; and Mr. Davison found it along the whole coast of Tenasserim.

It occurs, according to season, throughout the whole of Europe, Africa and Asia, ranging down through the archipelago to New Guinea and Australia. Its breeding-haunts are not known ; but they will doubtless be found to be in the far north of Asia.

I found this Stint frequenting mud-banks in tidal creeks in small flocks. It is probably late in arriving in the Province.

Genus EURYNORHYNCHUS, Nilss.

737. EURYNORHYNCHUS PYGMÆUS.

THE SPOON-BILLED STINT.

Platalea pygmæa, Linn. *Syst. Nat.* i. p. 231. *Eurynorhynchus griseus*, Nilss., *Tenn. Man. d'Orn.* ii. p. 594 ; *Jerd. B. Ind.* ii. p. 693. *Eurynorhynchus pygmæus*, Harting, *Ibis*, 1869, p. 427, pl. xii. ; *Bl. B. Burm.* p. 156 ; *Armstrong, S. F.* iv. p. 343 ; *David et Oust. Ois. Chine*, p. 474 ; *Hume & Dav. S. F.* vi. p. 463 ; *Hume, S. F.* viii. p. 113 ; *Oates, S. F.* x. p. 240.

Description.—*Winter plumage.* Forehead, lores, sides of the head, the whole lower plumage, under wing-coverts and axillaries pure white ; the whole upper plumage, wing-coverts, scapulars and tertiaries hair-brown, each feather centred darker and edged with whitish ; the greater coverts with broad white tips ; secondaries chiefly white, the centres being occupied by a pale brown streak ; primaries brown, tipped darker, the shafts nearly wholly white, the edges of the outer webs whitish ; tail brown, the inner webs of all but the central pair chiefly white.

In summer the head, neck, back and breast are ferruginous ; the feathers of the head, nape and back with dark brown centres, those of the throat and breast slightly margined with white ; underparts, from the breast downwards, becoming gradually whiter towards the tail ; primaries somewhat darker than in winter ; legs and toes black. (*Harting.*)

Bill black ; irides deep brown ; legs black. (*Jerdon.*)

Length of female 6·5 inches, tail 1·7, wing 4·1, tarsus ·8, bill from gape 1, breadth of bill near tip ·45.

The description of the bird in winter plumage is taken from two specimens shot in Arrakan by Mr. Shopland in November and January respectively.

The Spoon-billed Stint, remarkable for the curious shape of its bill, is apparently rare. Mr. Shopland, at my request, carefully looked for this bird whenever he went out shooting on the coast near Akyab, and this resulted in his procuring two specimens which he very liberally presented to me; they are now deposited in the British Museum. Dr. Armstrong procured one specimen near Elephant Point at the entrance to the Rangoon river, and subsequently two more at Amherst in Tenasserim.

It has been recorded from Arrakan several times, and probably this Wader is not really so rare as is generally supposed.

The range of this bird as given by Mr. Harting may be summarized as follows: the sea-coast from the mouths of the Ganges down the eastern side of the Bay of Bengal to Amherst in Tenasserim; Amoy in China, and Behring's Straits, North-east Asia.

With a known range of this extent it must necessarily be found over a considerable portion of Eastern and South-eastern Asia.

Little is known regarding the habits of this species. Mr. Shopland informed me that he generally saw it on the sea-coast in company with large numbers of other Stints, and it was distinguishable from them by its very pure white underplumage.

Genus MACHETES, Cuv.

738. MACHETES PUGNAX.

THE RUFF.

Tringa pugnax, Linn. Syst. Nat. i. p. 247. *Philomachus pugnax*, Jerd. B. Ind. ii. p. 687; Bl. & Wald. B. Burm. p. 156; Butler, S. F. iv. p. 17. *Machetes pugnax*, Dresser, Birds Eur. viii. p. 87, pl.; Hume & Dav. S. F. vi. p. 460; Hume, S. F. viii. p. 112; Scully, S. F. viii. p. 357; Legge, Birds Ceylon, p. 873; Oates, S. F. x. p. 240.

Description.—*Winter plumage.* Forehead, lores, cheeks, chin and throat generally pure white; crown and nape ashy brown, the feathers edged with whitish; the upper plumage ashy brown, each feather with a dark centre and with the edges ashy white; scapulars and tertiaries richer brown, with subterminal blackish patches; quills brown, the secondaries broadly white

at the tips ; tail brown, the central pair of feathers with subterminal dark patches ; ear-coverts white streaked with brown ; fore neck and sides of the neck brown, the feathers broadly edged with white ; remainder of the lower plumage white.

The above is the description of the full winter plumage ; it is the one in which I have always found them in Burmah. In the autumn and spring, however, the feathers of the upper plumage are dark brown with bright rufous-brown edgings, and the whole lower plumage is more or less suffused with pale rufescent. The female in winter is similar to the male, but very much smaller.

In summer the male has the face covered with yellow warty tubercles, and it acquires a ruff of long feathers which cover the breast ; this ruff varies in colour, being white or black, ferruginous or an intermixture of many colours. At this season the male cannot possibly be mistaken for any other bird, and an elaborate description of the plumage is unnecessary. The female in summer, according to Mr. Dresser, has the crown, nape and upper parts sandy brown marked with blackish brown ; quills blackish brown with white shafts ; the wing-coverts ashy brown ; tail ashy brown, varied with chestnut-red and black ; chin whitish ; throat and breast ashy brown slightly marked with dark brown ; rest of the underparts white, the upper flanks marked like the neck ; no sign of a ruff on the neck.

Iris dark brown ; legs and feet yellowish brown ; bill dark brown, paler at the gape.

Male : length about 12 inches, tail 2·8, wing 7·2, tarsus 1·8, bill from gape 1·5. *Female* : length about 10, tail 2·3, wing 6, tarsus 1·6, bill from gape 1·4.

The Ruff is tolerably abundant in the winter months about the mouth of the Sittang river, and in the numerous muddy creeks of the plains on both sides. Mr. Hume has received it from the Bassein river, and Mr. Blyth records it from Arrakan. Mr. Davison did not meet with it in Tenasserim.

It is found throughout Europe, except in the extreme north, and the whole of Africa. It is spread, according to season, over the greater part of Asia from Siberia to Ceylon, ranging eastwards to Burmah ; but it has not yet been met with in China and Japan, nor in the Malay peninsula and islands.

I observed this Wader in small flocks on the banks of creeks and in marshy tidal land. It does not appear to arrive early or to stay late, my specimens having been procured mostly in December.

Genus CALIDRIS, *Cuv.*

739. CALIDRIS ARENARIA.

THE SANDERLING.

Tringa arenaria, *Linn. Syst. Nat.* i. p. 251. *Charadrius calidris*, *Linn. Syst. Nat.* i. p. 255. *Calidris arenaria*, *Jerd. B. Ind.* ii. p. 694; *Hume, S. F.* i. p. 244; *Salvad. Ucc. Born.* p. 322; *Armstrong, S. F.* iv. p. 343; *Hume, S. F.* iv. p. 465; *David et Oust. Ois. Chine*, p. 467; *Dresser, Birds Eur.* viii. p. 101, pl.; *Hume, S. F.* viii. p. 113; *Legge, Birds Ceylon*, p. 1220; *Oates, S. F.* x. p. 240.

Description.—*Winter plumage.* Forehead, face and the whole lower plumage pure white; crown, nape, hind neck, back and scapulars pale ashy, the crown with well-defined black shaft-streaks, the other parts with narrower and less distinct shaft-streaks; wing-coverts blackish, the median and greater coverts broadly edged with white; primaries dark brown, blacker on the tips and outer webs, the shafts white, a portion of the outer webs of the later ones white; secondaries black, whitish at base and tipped with white; tertiaries rather broadly edged with white; tail pale brown on the outer webs, more or less white on the inner.

Irides dark brown; bill, legs, feet and claws black. (*Armstrong.*)

Length 7·5 inches, tail 2, wing 4·8, tarsus ·1, bill from gape 1·1. The female is a trifle larger.

The above description is taken from European specimens in the plumage of January. Birds shot in October (and they are likely to occur in Burmah in this month) have the crown, back and scapulars more or less black, the feathers with terminal patches of whitish on both webs. In the full summer plumage the crown, nape, back and scapulars are black margined with rusty red, and the sides of the head, throat and breast are rufous marked with black.

The Sanderling was procured by Dr. Armstrong at Elephant Point, and there is no other instance of its occurrence in British Burmah; but it is likely to be met with along the whole sea-coast. This Wader is remarkable for having no hind toe, and it may therefore be easily recognized.

It has a very wide distribution, being found, according to season, over nearly the entire globe. In the south-east of Asia it has been recorded from Cochin China by Dr. Tiraud and from Java, but it does not appear to extend to Australia or to the islands of the Pacific Ocean. It summers in very high latitudes far within the Arctic circle, and the nest has been found in lat. 82° N. on the coasts of North America.

It is confined apparently to the sea-coast, seldom or never coming inland.

Genus TRINGOÏDES, *Bonap.*

740. TRINGOÏDES HYPOLEUCUS.

THE COMMON SANDPIPER.

Tringa hypoleucos, *Linn. Syst. Nat.* i. p. 250. *Actitis hypoleucos*, *Jerd. B. Ind.* ii. p. 699; *Bl. B. Burm.* p. 155; *Anders. Yunnan Exped.* p. 681. *Tringoides hypoleucos*, *Hume, Nests and Eggs*, p. 588; *id. S. F.* ii. p. 299, iii. p. 183; *Salvad. Ucc. Born.* p. 326; *Armstrong, S. F.* iv. p. 344; *David et Oust. Ois. Chine*, p. 467; *Hume & Dav. S. F.* vi. p. 463; *Hume, S. F.* viii. p. 113; *Legge, Birds Ceylon*, p. 867; *Oates, S. F.* x. p. 241. *Totanus hypoleucos*, *Dresser, Birds Eur.* viii. p. 127, pl.; *Bingham, S. F.* ix. p. 197.

Description.—*Male and female.* General colour of the upper plumage ashy brown glossed with green; the crown, hind neck and upper back streaked with dark brown; the wing-coverts, lower back, rump, upper tail-coverts, scapulars and tertiaries with wavy cross bands of brown and dark shaft-streaks, the feathers of the coverts more or less narrowly margined with grey; primaries dark brown, with a patch of white on the inner webs; secondaries white at the base and at the tip, brown elsewhere; central tail-feathers like the back, the others tipped with white, the outermost pair broadly barred with white, the outer web nearly all white; a broad but indistinct pale supercilium from the bill to the nape; chin and throat pure white; the breast and the sides of the head and neck white streaked with brown; remainder of the lower plumage pure white.

There is little or no seasonal change of plumage. In summer the upper parts are darker and more glossy, and the breast and sides of the neck are more marked with brown.

Bill greyish brown, darker at tip and with a greenish tinge at base; iris brown; legs pale green; claws horn-colour.

Length 8 inches, tail 2·3, wing 4·2, tarsus 1, bill from gape 1·1. The female is of the same size.

The Common Sandpiper is found abundantly over the whole Province from August to April or May.

It is found throughout the continents of Europe, Africa and Asia, extending through the archipelago to Australia and some of the islands of the Pacific Ocean. It does not retire far north to breed, many of these birds remaining in temperate climates throughout the summer.

This bird is the most abundant of all the smaller Waders, frequenting the banks of rivers, marshes, lakes and pools of water. It has been found breeding in Cashmeer in May and June.

Genus *HELODROMAS*, *Kaup*.741. *HELODROMAS OCHROPUS*.

THE GREEN SANDPIPER.

Tringa ochrophus, *Linn. Syst. Nat.* i. p. 250. *Actitis ochropus*, *Jerd. B. Ind.* ii. p. 698; *Bl. B. Burm.* p. 155. *Totanus ochropus*, *Hume, S. F.* iii. p. 183; *Dresser, Birds Eur.* viii. p. 135, pl.; *David et Oust. Ois. Chine*, p. 465; *Anders. Yunnan Exped.* p. 679; *Hume & Dav. S. F.* vi. p. 462; *Hume, S. F.* viii. p. 113; *Scully, S. F.* viii. p. 357; *Legge, Birds Ceylon*, p. 862; *Bingham, S. F.* ix. p. 197; *Oates, S. F.* x. p. 240. *Helodromas ochropus*, *List Brit. Birds, Brit. Orn. Union*, p. 174.

Description.—*Winter plumage.* Forehead, crown, nape and hind neck ashy brown; back, scapulars, tertiaries and wing-coverts ashy brown, each feather with a series of whitish spots on the edges of both webs; primaries and secondaries brown; rump brown; upper tail-coverts pure white; tail with the base white, the remainder white barred broadly with black, the bars becoming lost on the outermost feathers, which are nearly all white; chin and upper throat pure white; a brown streak from the bill to the eye and a whitish supercilium; sides of face and neck, fore neck and breast white with dusky streaks; remainder of the lower plumage white; axillaries and under wing-coverts dark brown narrowly barred with white.

In summer the head and hind neck become streaked with greyish white, the upper plumage is darker, and the fore neck, breast and sides of the neck are more densely streaked with brown.

Iris dark brown; terminal half of bill dark brown, basal half dusky green; legs and toes pale dull green; claws dark horn-colour.

Length 9·5 inches, tail 2·6, wing 5·9, tarsus 1·4, bill from gape 1·5. The female is of about the same size.

The Green Sandpiper is not very common, but it is generally spread over the Province in the winter. Mr. Davison failed to meet with it in Tenasserim; but this was due to accident, for both Dr. Armstrong and Mr. Davis procured it in the northern part of that Division.

It occurs, according to season, throughout Europe, Africa and Asia, extending south-east in the latter continent as far as Cochin China, but apparently not down the Malay peninsula or into the archipelago. It breeds in Northern Asia and Europe, some birds, however, remaining in Central Asia and China for this purpose.

I have generally found this Sandpiper in paddy-fields in company with Snipe, and I have comparatively seldom seen it on the banks of streams. It has the remarkable habit of depositing its eggs in the deserted nests of other birds in trees.

Genus TOTANUS, *Bechst.*

742. TOTANUS GLAREOLA.

THE WOOD-SANDPIPER.

Tringa glareola, *Gm. Syst. Nat.* i. p. 677. *Actitis glareola*, *Jerd. B. Ind.* ii. p. 697; *Bl. B. Burm.* p. 155; *Armstrong, S. F.* iv. p. 344. *Totanus glareola*, *Salvad. Ucc. Born.* p. 327; *Hume, S. F.* iii. p. 183; *David et Oust. Ois. Chine*, p. 464; *Dresser, Birds Eur.* viii. p. 143, pl.; *Anders. Yunnan Exped.* p. 678; *Legge, Birds Ceylon*, p. 857. *Rhyacophila glareola*, *Hume & Dav. S. F.* vi. p. 462; *Cripps, S. F.* vii. p. 303; *Hume, S. F.* vii. p. 488, viii. p. 113; *Bingham, S. F.* ix. p. 197; *Oates, S. F.* x. p. 240.

Description.—*Winter plumage.* The upper plumage dark brown, the crown and hind neck with a few fulvous-white streaks; the wing-coverts, back, scapulars and tertiaries with white and grey spots on each feather; rump blackish margined with whitish; upper tail-coverts white; tail barred with black and white; primaries and secondaries dark brown, the tips of the latter narrowly white; a supercilium from the bill to the end of the ear-coverts dull white; lores brown; chin white; sides of the head and neck, the throat, fore neck and breast dull white streaked with brown; remainder of lower plumage white, the under tail-coverts and the sides of the body sparingly barred with brown, the former sometimes with only a few streaks.

In summer the upper plumage is blotched with black, and the pale streaks on the head are larger and more frequent; but the general character of the coloration is not much altered.

Basal half of bill olive-brown, terminal half black; iris brown; legs and feet pale greenish; claws dark horn-colour.

Length 9 inches, tail 2.1, wing 5, tarsus 1.5, bill from gape 1.3. The female is of the same size.

This and the preceding species are not likely to be confounded; but it may be well to point out characters by which they may be easily recognized should a doubt occur. *Helodromas ochropus* is larger, the black bars on the tail are much wider than the white ones, and the axillaries are dark brown with narrow white bars. *T. glareola* is smaller, the black and white alternating bars on the tail are of about equal width, and the axillaries are white distantly barred with brown.

The Wood-Sandpiper is generally distributed throughout the Province in the winter months, but it is not anywhere abundant.

It occurs throughout Europe, Africa and Asia, extending in the latter Continent down to Cochin China, the Malay peninsula and archipelago, Celebes and the Philippines. In summer it retires to northern climates, some few birds, however, remaining in temperate countries to breed.

This species frequents both marshes and the banks of streams, and is generally met with in couples or singly.

743. TOTANUS CANESCENS.

THE GREENSHANK.

Scolopax totanus, Linn. *Syst. Nat.* i. p. 245. *Scolopax canescens*, Gm. *Syst. Nat.* i. p. 668. *Totanus glottis** (Linn.), *Jerd. B. Ind.* ii. p. 700; *Salvad. Ucc. Born.* p. 328; *Bl. B. Burm.* p. 155; *David et Oust. Ois. Chine*, p. 462; *Hume & Dav. S. F.* vi. p. 463; *Cripps, S. F.* vii. p. 304; *Hume, S. F.* viii. p. 113; *Scully, S. F.* viii. p. 358; *Legge, Birds Ceylon*, p. 840; *Oates, S. F.* x. p. 241. *Totanus canescens*, *Dresser, Birds Eur.* viii. p. 173, pl.; *Hume, S. F.* i. p. 247, iii. p. 183; *Armstrong, S. F.* iv. p. 344; *Anders. Yunnan Exped.* p. 677.

Description.—*Winter plumage.* Forehead, crown, nape, lores, sides of the head, back and sides of the neck and the sides of the breast white streaked with dark brown; back, scapulars, median and greater wing-coverts greyish brown, each feather margined with white and with an irregular dusky bar in front of the tipping; lesser wing-coverts dark brown; tertiaries greyish brown, with alternating brown and white marks near the edges of the webs; lower back, rump and upper tail-coverts pure white; tail white narrowly barred with wavy brown lines, which become reduced towards the outer feathers; quills brown, narrowly margined with white at the tips and on the inner webs; a large white patch over the lores; the whole lower plumage white, the axillaries barred with brown.

In summer the white margins to the feathers of the back, scapulars and wing-coverts disappear and the subterminal dark bars become larger; the throat is streaked with brown and the breast is covered with round black spots.

Bill dark olive-brown, changing to darker brown at the tip; iris brown; legs yellowish green; claws dark horn-colour.

Length 14 inches, tail 3·3, wing 7·5, tarsus 2·7, bill from gape 2·5; the bill is slightly curved upwards. The female is of about the same size.

This species differs from the other members of this genus in having the bill curved upwards slightly.

The Greenshank is abundant throughout the Province from September to March or even later.

It is found throughout Europe, Africa and Asia, extending through the archipelago to Australia. It is also said to occur in portions of both North and South America. In winter it retires to the northern parts of Europe and Asia to breed.

This Wader is found in small flocks on the banks of streams and less often in marshes and paddy-fields.

* *Scolopax glottis*, Linn. (*S. N.* i. p. 245), is of very doubtful application to this species, and recent writers are almost unanimous in rejecting this name for the Greenshank.

744. TOTANUS STAGNATILIS.

THE LITTLE GREENSHANK.

Totanus stagnatilis, *Bechst. Orn. Taschenb.* ii. p. 292; *Jerd. B. Ind.* ii. p. 701; *Dresser, Birds Eur.* viii. p. 151, pl.; *Salvad. Ucc. Born.* p. 328; *Bl. B. Burm.* p. 155; *Hume, S. F.* iii. p. 183; *Armstrong, S. F.* iv. p. 348; *David et Oust. Ois. Chine*, p. 463; *Hume & Dav. S. F.* vi. p. 463; *Hume, S. F.* viii. p. 113; *Legge, Birds Ceylon*, p. 844; *Oates, S. F.* x. p. 241.

Description.—*Winter plumage.* Forehead, lores, cheeks and the whole lower plumage with the axillaries and under wing-coverts pure white; the sides of the neck and of the breast with a few narrow brown streaks; crown, nape and hind neck greyish brown, narrowly streaked with blackish and white; back and scapulars with black shafts and narrowly edged with white; lesser wing-coverts very dark brown; median and greater coverts greyish brown edged with white; tertiaries with interrupted black bars or spots on the outer webs; primaries brown, the later ones narrowly edged with white on the inner webs and at the tips; secondaries brown margined with white and with a good deal of the inner webs white; lower back and rump pure white; upper tail-coverts white with arrowhead-shaped brown bars; tail white, with irregular, more or less diagonally disposed brown bars.

In summer the feathers of the upper plumage become blotched with black, and the forehead, sides of the head and neck, the whole throat and breast become covered with roundish black marks.

Bill black, olive-brown at base; iris brown; legs yellowish brown with an olive tinge; claws dark brown.

Length 10 inches, tail 2·4, wing 5·6, tarsus 2·1, bill from gape 1·75. The female is of about the same size.

The Little Greenshank is abundant in Pegu during the winter, but not so much so as the preceding species. Mr. Davison states that it is rare in Tenasserim, and Mr. Blyth records it from Arrakan.

It inhabits Eastern and South-eastern Europe, and it has been found over the greater part of Africa. It occurs throughout Central and Southern Asia, not going far north; it extends in a south-easterly direction to the Malay archipelago, having been found in Java and Borneo, and it ranges to Australia. It has been found breeding in Hungary and in Turkestan.

This Greenshank is found in small flocks of from four to ten individuals on the mud-banks of the larger rivers, and also on the edges of marshes and ponds.

745. TOTANUS CALIDRIS.

THE REDSHANK.

Scolopax calidris, Linn. *Syst. Nat.* i. p. 245. *Totanus calidris*, Jerd. *B. Ind.* ii. p. 702; *Hume, S. F.* i. p. 248, ii. p. 299; *Salvad. Ucc. Born.* p. 328; *Bl. B. Burm.* p. 155; *Dresser, Birds Eur.* viii. p. 157, pl.; *Armstrong, S. F.* iv. p. 348; *David et Oust. Ois. Chine*, p. 464; *Hume & Dav. S. F.* vi. p. 464; *Cripps, S. F.* vii. p. 304; *Hume, S. F.* viii. p. 113; *Legge, Birds Ceylon*, p. 852; *Oates, S. F.* x. p. 241.

Description.—*Winter plumage.* Forehead, crown, nape, hind neck, back, scapulars and tertiaries glossy ashy brown; lower back and rump pure white; upper tail-coverts white barred with brown; tail barred with ashy and white and more or less tinged with brown; space between the bill and the eye brown; above this white; cheeks and sides of face brown streaked with white; the whole lower plumage with the axillaries white, the fore neck and upper breast streaked with brown; primaries brown, the shaft of the first white; secondaries almost all white; wing-coverts brown margined with white, the greater coverts tipped with white; under tail-coverts with a few brown streaks.

In summer the upper plumage becomes marked with black and the whole lower plumage is densely streaked with brown.

Iris brown; bill black, with the base of the upper mandible reddish; legs and feet orange-red.

Length 11 inches, tail 2·6, wing 6·2, tarsus 2, bill from gape 2. The female is of about the same size.

The Redshank is common throughout the Province during the winter months, and Capt. Wardlaw Ramsay observed it in Karennee.

It occurs throughout Europe, Africa and Asia, extending to Cochin China, the Philippines and the islands of the Malay archipelago. It does not retire so far north in summer as many of the other Waders do. It breeds in Central Asia and in Europe, even so far south as Spain.

This species has much the same habits as the Greenshank, being met with in small flocks on the banks of rivers and near pools of water and marshes.

746. TOTANUS FUSCUS.

THE SPOTTED REDSHANK.

Scolopax fusca, Linn. *Syst. Nat.* i. p. 243. *Totanus fuscus*, *Jerd. B. Ind.* ii. p. 702; *Hume, S. F.* i. p. 248; *Dresser, Birds Eur.* viii. p. 165, pl.; *Cockburn, S. F.* iv. p. 509; *David et Oust. Ois. Chine*, p. 463; *Hume & Dav. S. F.* vi. p. 463; *Hume, S. F.* viii. p. 113; *Legge, Birds Ceylon*, p. 848; *Oates, S. F.* x. p. 241.

Description.—*Winter plumage.* Forehead, crown, nape, lores, hind neck and back ashy grey; a patch over the lores white; sides of the face ashy grey streaked with white; wing-coverts, scapulars and tertiaries ashy brown, the feathers more or less margined with white, the greater coverts with conspicuous white marks along their edges, the tertiaries with alternating white and dark brown marks; primaries dark brown, the inner webs much marked with white; secondaries white barred with brown; rump pure white; upper tail-coverts beautifully barred with black and white; tail ashy brown, banded with wavy incomplete bars of white and dark brown; the whole lower plumage, axillaries and under wing-coverts white, the fore neck and sides of the neck mottled with dusky.

In summer the head, neck and underparts become sooty black; and the back, scapulars, tertiaries and wing-coverts are also black, marked with white on the edges of the feathers.

Bill very dark brown, the basal half of the lower mandible dusky red; iris brown; legs and toes orange-red; claws black.

Length 13 inches, tail 2·7, wing 6·7, tarsus 2·2, bill from gape 2·6. The female is of the same size.

This species is not only much larger than the last, but it also wants the conspicuous white secondaries.

The Spotted Redshank is not very abundant, but it is no doubt generally distributed over the Province in small numbers. I observed it to be fairly common in the flat parts of Southern Pegu, and Mr. Davison procured it at the mouth of the Sittang river. It does not appear to have been obtained by any one else in the Province.

It has as wide a range as many of the other Waders, being found throughout Europe and in Africa as far south as the Cape of Good Hope. It occurs throughout Asia as far east as China and Cochin China, but it apparently does not range south into the Malay peninsula and archipelago. In summer it retires to the extreme north of Europe and Asia to breed.

In habits this species does not appear to differ from the preceding.

747. TOTANUS HAUGHTONI.

ARMSTRONG'S YELLOWSHANK.

Totanus haughtoni, *Armstrong*, *S. F.* iv. p. 344; *Hume & Dav.* *S. F.* vi. p. 463; *Harting*, *Ibis*, 1883, p. 133, pl. iv. *Pseudototanus haughtoni*, *Hume*, *S. F.* vii. p. 488, viii. p. 113; *Hume & Marsh.* *Game Birds*, iii. p. 404, pl.; *Oates*, *S. F.* x. p. 241.

Description.—In winter plumage resembles generally *Totanus canescens*, but has a much broader and more massive bill, a much shorter tarsus (male 1·85 inch, female 1·65), and the webs between the three anterior toes very much more developed. (*Hume*.)

It differs from *Totanus canescens* in its smaller size, more robust bill with the lateral groove slightly more prolonged in proportion to the length of the bill, shorter and slightly more robust legs and feet, and in having a palmation on both sides of the middle toe instead of one side only as in *T. canescens*. The tail does not extend beyond the end of the closed primaries; and the tertials are not so long in proportion to the length of the primaries. Besides I have never seen any specimen of *T. canescens* in winter plumage which had the back of such a uniform brownish grey; there is always a hoariness or mealiness (as expressed by the term *canescens*) in the dorsal plumage of our Greenshank. (*Harting*.)

Mr. Harting adds:—"It does not appear that there is much difference in the bills of the two species; but there is a noticeable difference in the semipalmation of the toes. This, however, I do not regard as sufficient to render *generic* distinction either necessary or desirable, although there is a precedent for adopting such a course in the case of the American *Totanus semipalmatus* (Gm.), for which the generic name *Symphemia* of Rafinesque was proposed on account of a similar peculiarity."

Having never seen a specimen of this bird I am unable to form an independent opinion on the subject, and I therefore follow Mr. Harting, whose knowledge of the Limicolæ is so thorough, in placing this species in the genus *Totanus*.

Armstrong's Yellowshank was discovered by Dr. Armstrong on the sea-coast near Elephant Point, and this naturalist subsequently procured some specimens at Amherst in Tenasserim. It has not been met with by any one else in Burmah; but Mr. Hume observed one specimen in the Calcutta Market which must have been killed in the neighbourhood of that town.

It will probably be found hereafter along the whole coast on the eastern side of the Bay of Bengal. It has been met with in Burmah only in the winter, and its summer quarters are quite unknown.

Dr. Armstrong found this species on sand-banks and mud-flats on the sea-shore, and it is probably confined to the sea-coast and the banks of the larger rivers within tidal influence.

Genus TEREKIA, *Bonap.*

748. TEREKIA CINEREA.

THE TEREK SANDPIPER.

Scolopax cinerea, *Güldenst. N. Comm. Sc. Imp. Petrop.* xix. p. 473, t. xix. *Terekia cinerea*, *Jerd. B. Ind.* ii. p. 682; *Dresser, Birds Eur.* viii. p. 195, pl.; *Hume, S. F.* i. p. 237, ii. p. 296; *Salvad. Ucc. Born.* p. 330; *Armstrong, S. F.* iv. p. 341; *David et Oust. Ois. Chine*, p. 460; *Hume & Dav. S. F.* vi. p. 460; *Hume, S. F.* viii. p. 112; *Legge, Birds Ceylon*, p. 836; *Oates, S. F.* x. p. 239.

Description.—*Winter plumage.* The whole upper plumage greyish brown, each feather with a darker shaft-stripe and some of the upper scapulars blotched with blackish; lesser and greater wing-coverts dark brown, the latter tipped with white; median coverts greyish brown like the back, turning to darker brown near the edge of the wing; primaries dark brown, the shaft of the first white; secondaries brown, very broadly tipped and margined interiorly with white; tertiaries greyish brown with black shafts; tail brown mottled-with grey and the outer feathers narrowly edged with whitish; lores brown; a band above them whitish marked with brown dots; cheeks whitish streaked with brown; chin and throat white; ear-coverts greyish brown; sides of the neck and all but the central portion of the breast greyish brown with dark shaft-streaks; centre of the breast albescent; remainder of the lower plumage with the axillaries and most of the under wing-coverts pure white.

In summer the shaft-streaks on the upper plumage become more developed, and most of the scapular feathers become nearly entirely black; the sides of the head, throat, fore neck and breast become very distinctly streaked with brown on a pure white ground.

Bill dark brown, yellowish at the base of the lower mandible; iris brown; legs and toes yellow.

Length 8·5 inches, tail 2·2, wing 5·1, tarsus 1·1, bill from gape 1·6 to nearly 2. The female is larger, but both sexes vary in size, especially in the length of the bill, which in this species is curved upwards throughout.

The Terek Sandpiper, Curlew Sandpiper or Pigmy Curlew, as it is variously termed, appears to be spread over the whole Province in winter. I found it rather abundant in the muddy creeks between the Pegu and Sittang rivers; Dr. Armstrong procured it in the Irrawaddy Delta, Mr. Davison throughout Tenasserim, and Mr. Blyth in Arrakan.

It occurs throughout Eastern Europe and Eastern Africa and over nearly the whole of Asia, extending through the Malay archipelago to Australia. It summers in Russia and Siberia.

This curious Sandpiper is met with in flocks on mud-banks and swampy tracts of country.

Genus PSEUDOSCOLOPAX, *Bl.*

749. PSEUDOSCOLOPAX SEMIPALMATUS.

THE SNIPE-BILLED GODWIT.

Macrorhamphus semipalmatus, *Jerd. Bl. J. A. S. B.* xvii. p. 252; *Jerd. B. Ind.* ii. p. 679; *Hume, S. F.* vii. p. 434. **Pseudoscolopax semipalmatus**, *Swinh. P. Z. S.* 1863, p. 313, 1871, p. 407; *Salvad. Ucc. Born.* p. 332; *David et Oust. Ois. Chine*, p. 474, pl. 121; *Hume, S. F.* viii. p. 112; *Hume & Marsh. Game Birds*, iii. p. 395, pl.; *Oates, S. F.* x. p. 239.

Description.—*Winter plumage.* Lores brown; a broad streak over the lores white; sides of the head, chin, throat, fore neck and breast white densely marked with short brown streaks; abdomen and vent white; under tail-coverts white marked with V-shaped brown marks; sides of the body white irregularly barred with brown; under wing-coverts white; axillaries white with a few irregular short brown bars; forehead, crown, nape, hind neck, sides of the neck, back, scapulars and tertiaries brown, each feather margined with greyish white; upper wing-coverts dark brown broadly edged with white; primary-coverts brown; primaries brown, the tips darker, the shafts white, the outer webs narrowly margined with white; secondaries brown, broadly edged with white and irregularly barred with the same; rump, upper tail-coverts and tail white broadly barred with brown.

In summer, according to Messrs. David and Oustalet, the upper plumage is bright rufous, with brown streaks on the nape, lores and hind neck, and with large brown spots on the dorsal feathers; lower plumage more uniform rufous, with a little white on the edges of the feathers of the abdomen and some irregular brown streaks on the feathers of the flanks and under tail-coverts; wing-coverts, secondaries and tertiaries greyish brown bordered with white; primaries brown with the shafts white; tail-feathers brown, transversely banded with white.

Bill black, turning to plumbeous at the base; iris dark brown; legs and toes dark plumbeous; claws black.

Length 13·5 inches, tail 2·5 to 2·9, wing 6·8 to 7, tarsus 2·05, bill from gape 2·9 to 3·25. The sexes appear to be of very much the same size.

This species is remarkable for having the general appearance of a Godwit and the bill of a Snipe, the terminal half of this member being swollen and covered with small pits as in the Snipes, and the feet are webbed to a considerable extent.

The Snipe-billed Godwit appears to be a very rare species. I shot two specimens in Pegu on the 29th of September near Kyeikpadein, and I

never met with it again. Colonel M'Master is said to have procured it near Rangoon some years ago.

It has been recorded from Dauria, Eastern Siberia and Mongolia. Mr. Swinhoe states that it summers in inland Northern China, and he procured specimens at Tientsin and Hankow. In winter it visits India and Burmah, and it has been procured in Borneo.

Little is known regarding the habits of this bird. The two specimens I shot were feeding on the edge of a swampy piece of ground and appeared to be feeling in the mud for worms.

Genus LIMOSA, *Briss.*

750. LIMOSA ÆGOCEPHALA.

THE BLACK-TAILED GODWIT.

Scolopax limosa, *Linn. Syst. Nat.* i. p. 245. **Scolopax ægocephala**, *Linn. Syst. Nat.* i. p. 246. **Limosa ægocephala**, *Jerd. B. Ind.* ii. p. 681; *Dresser, Birds Eur.* viii. p. 211, pl.; *Bl. B. Burm.* p. 155; *Wardlaw Ramsay, Ibis*, 1877, p. 469; *Hume & Dav. S. F.* vi. p. 460; *Hume, S. F.* viii. p. 112; *Scully, S. F.* viii. p. 356; *Legge, Birds Ceylon*, p. 832; *Hume & Marsh. Game Birds*, iii. p. 409, pl.; *Oates, S. F.* x. p. 239.

Description.—*Winter plumage.* Chin and upper throat white; sides of the head and neck, lower throat, fore neck, breast, sides of the body, crown, nape and hind neck ashy; back, scapulars, tertiaries and wing-coverts ashy brown, the shafts darker and the edges of the feathers somewhat paler; rump darker brown, with the edges of the feathers more distinctly paler; upper tail-coverts white, the longer ones black; tail white at base, remainder dark brown, all the feathers tipped paler, the amount of white at the base of the tail increasing outwardly; primaries brown, the shafts white; secondaries brown on the inner webs, mostly white on the outer; abdomen, vent and under tail-coverts white; axillaries pure white.

The above description refers to the pure winter plumage, but birds will always be found even in midwinter with rufous marks on the head, neck and breast. In full summer plumage the whole bird is more or less rufous, the chest and flanks barred with black and the upper plumage marked with blackish brown; the upper tail-coverts and tail, however, are the same as in winter.

Bill with the basal half pinkish, the terminal half dark brown; iris dark brown; legs plumbeous; claws brown.

Length 15 inches, tail 3·3, wing 8, tarsus 2·9, bill from gape 3·5. These are the average measurements of a few males shot in Burmah; the females as a rule are larger than the males, but both sexes vary very much in size.

This species may be recognized from all other Godwits by its pure white axillaries. Other species of this genus may be found eventually in Burmah. *L. lapponica* occurs in India, and has the axillaries white barred with blackish grey; *L. baueri* (*L. novæ-zealandiæ*), which occurs in Australia and throughout Eastern Asia, appears to be, according to Mr. Dresser, doubtfully distinct from the last, differing only in the rump and upper tail-coverts being more barred; and *L. melanuroides* from China differs from *L. ægocephala* in being of a smaller size and having shorter tarsi. I once procured a remarkably small Godwit in Burmah which no doubt belonged to this species; but I regret that on my return to England I could not find it among my collections.

The Black-tailed Godwit appears to be a rare visitor to all parts of the Province except Southern Pegu, where on the Sittang river and the numerous tidal creeks running out of it I found it abundant in the winter months. I procured one bird so late as the 11th of May on the banks of the canal. In Tenasserim, Mr. Davison obtained only one specimen at Moulmein; and Capt. Wardlaw Ramsay states that it is rare in Burmah. Mr. Blyth received it from Arrakan.

It occurs throughout Europe and North Africa and over a great part of Asia; but its eastern limits cannot be defined, as it has been confounded with the smaller *L. melanuroides*, which inhabits Eastern Siberia, China, Mongolia and Eastern Asia generally. In winter it retires to high latitudes, but many birds seem to breed as far south as Poland.

This Godwit in many parts occurs in large flocks, but in Burmah I have generally observed it in couples or small flocks not exceeding six birds. It frequents sand-banks and the banks of rivers and marshes.

Genus NUMENIUS, *Briss.*

751. NUMENIUS PHÆOPUS.

THE WHIMBREL.

Scolopax phæopus, *Linn. Syst. Nat.* i. p. 243. **Numenius phæopus**, *Jerd. B. Ind.* ii. p. 684; *Salvad. Ucc. Born.* p. 333; *Dresser, Birds Eur.* viii. p. 227, pl.; *Hume, S. F.* ii. p. 297, iii. p. 182; *Bl. B. Burm.* p. 155; *Armstrong, S. F.* iv. p. 341; *David et Oust. Ois. Chine*, p. 457; *Hume & Dav. S. F.* vi. p. 460; *Hume, S. F.* viii. p. 112; *Legge, Birds Ceylon*, p. 910; *Oates, S. F.* x. p. 240.

Description.—*Male and female.* Forehead, crown and nape brown; a light streak over the centre of the crown; a broad streak from the bill over the eye to the occiput whitish sparingly streaked with brown; chin and throat white; sides of the head, sides and front of the neck and the whole breast white boldly streaked with brown; upper part of the abdomen and the sides of the body white, with arrowhead-shaped cross bars of brown; remainder of the lower plumage white, some of the lateral under tail-coverts marked with brown; back, wing-coverts, scapulars and tertiaries brown, each feather edged with paler brown; rump pure white; upper tail-coverts whitish barred with brown; tail light brown cross-barred with dark brown; quills dark brown, the inner webs barred with white; shaft of first primary white, the others turning to brown. There is no seasonal change of plumage.

Iris brown; bill dark brown, the basal half of lower mandible fleshy brown; legs and feet plumbeous.

Length 17 inches, tail 4, wing 9, tarsus 2·3, bill from gape 3·8.

The Whimbrel is sparingly distributed along the whole sea-coast line of British Burmah in the winter months. I procured it near the mouth of the Sittang river, Dr. Armstrong in the Irrawaddy Delta, and Captain Feilden at Thayetmyo. Mr. Davison observed it in all parts of Tenasserim, and Mr. Blyth records it from Arrakan.

It is found throughout Europe, Africa and the whole of Asia, extending through the Malay archipelago to the Philippines, Celebes, New Guinea and Australia. It is migratory, retiring to northern regions to breed.

The Whimbrel frequents the sea-coast in preference to other localities, but it is also found along the course of the larger rivers far inland. Mr. Davison mentions having seen this bird in the Tavoy river in July.

752. NUMENIUS ARQUATUS.

THE CURLEW..

Scolopax arquata, Linn. *Syst. Nat.* i. p. 242. *Numenius lineatus*, Cuv. *Règne Anim.* i. p. 521; *Hume, S. F.* i. p. 237; *Bl. B. Burm.* p. 155; *Armstrong, S. F.* iv. p. 341; *David et Oust. Ois. Chine*, p. 457; *Hume & Dav. S. F.* vi. p. 460; *Hume, S. F.* viii. p. 112; *Scully, S. F.* viii. p. 356; *Legge, Birds Ceylon*, p. 906; *Oates, S. F.* x. p. 239. *Numenius arquatus*, *Jerd. B. Ind.* ii. p. 683; *Dresser, Birds Eur.* viii. p. 243, pl.; *Hume, S. F.* iii. p. 182.

Description.—*Winter plumage.* The whole head, neck and breast white, tinged with grey, each feather with a long narrow dark-brown streak down the centre; remainder of the lower plumage white, the sides of the body very broadly, the abdomen and under tail-coverts sparingly streaked with dark brown; back, wing-coverts, scapulars and tertiaries dark brown, each feather edged with pale or whity brown; rump white, streaked with brown; upper tail-coverts white barred with brown; tail light brown barred with dark brown; primaries dark brown, mottled with white on the inner webs; secondaries brown, notched with white on the edges of both webs; shaft of first primary white, the others gradually turning to brown.

In summer the lower breast and flanks are marked with roundish brown marks.

Iris dark brown; bill leaden brown, darker near the tip; legs and toes leaden brown.

Length 23 inches, tail 4·5, wing 11·5 to 12·3, tarsus 3·4, bill from gape 5·8 to 6·4. These are the measurements of several birds shot in Burmah. The female is on the whole larger than the male; but both sexes vary much in size.

On inquiring of Mr. Harting whether in his opinion *N. lineatus* was distinct from *N. arquatus* of Europe, he has kindly informed me that the former is merely the winter and the latter the summer plumage of the same species. A point which has afforded much matter for discussion for many years past is thus satisfactorily settled by our greatest authority on the Limicolæ. Although many writers have refused to accord specific rank to *N. lineatus*, not one of them I believe has given any reason for it, except that the two species graded into each other; and the question that the differences between the two supposed species were seasonal has never before, I think, been raised.

The Curlew is generally distributed over the Province, being found chiefly on the sea-coast and in those rivers which are tidal. Capt. Feilden procured it at Thayetmyo; but I have never seen it away from the neighbourhood of the sea. Mr. Davison found it along the whole Tenasserim

coast, Dr. Armstrong in the Irrawaddy Delta, and Mr. Blyth received it from Arrakan. Near the Sittang and the adjacent plains it is far from uncommon.

It occurs all over Europe, Africa and Asia, extending on the south-east to Cochin China and down the Malay peninsula, where it meets *N. cyanopus*, a species diffused through Eastern Asia from Japan to Australia, and differing from *N. arquatus* in having the rump and upper tail-coverts rufous-grey or brown strongly barred with dark brown.

The Curlew is a winter visitor to Burmah, retiring in the spring to northern climates to breed. It is usually seen lone, and is extremely wary and difficult to approach.

Order XV. GAVIÆ.

Family LARIDÆ.

Subfamily STERCORARIINÆ.

Genus STERCORARIUS, *Briss.*

753. STERCORARIUS POMATORHINUS.

THE POMATORHINE SKUA.

Lestris pomarinus, *Temm. Man. d'Orn.* p. 514. **Catarracta pomarina**, *Tick. J. A. S. B.* xxviii. p. 416. **Catarractes pomarhinus**, *Bl. Ibis*, 1859, p. 464. **Lestris pomatorhinus**, *Bl. B. Burm.* p. 163. **Stercorarius pomatorhinus**, *Saunders, P. Z. S.* 1876, p. 324; *Dresser, Birds Eur.* viii. p. 463, pl.; *Hume & Dav. S. F.* vi. p. 490; *Hume, S. F.* viii. p. 115.

Description.—*Adult.* Forehead, crown, nape, sides of the face and cheeks dark brown; chin, throat, sides of the head from the eyes backwards, the whole neck and entire lower plumage, except the vent and under tail-coverts, white; the sides and back of the neck tinged with yellow; the breast streaked sparingly with brown; the sides of the body blotched with brown; the vent, under tail-coverts and under wing-coverts brown, the two former dashed in places with white; upper plumage, wings and tail

dark brown, the primaries with the shafts and bases of the feathers white.

The *young* are uniform sooty brown, each feather edged pale; and the lower abdomen, vent and under tail-coverts are broadly barred with alternate bands of brown and white, and the tips of the feathers are rufescent.

Bill dark horn, bluish at the base; iris brown; legs blackish. (*Dresser*.)

Length about 21 inches, tail about 8, the central pair of feathers projecting beyond the others rather more than 2 inches, wing 14, tarsus 2, bill from gape 2·4.

A specimen of the Pomatorhine Skua was obtained by Col. Tickell from some boys who had killed it in a field near Moulmein. It was adult, and there is no reason to doubt Col. Tickell's identification of the bird.

It is an inhabitant of the northern portions of Europe, Asia and America, wandering at times far south, for specimens have been obtained at the Cape of Good Hope and at Cape York in Australia.

The Skuas are of rapacious habits, living chiefly by robbing other sea-birds of their prey. They have comparatively little white on their plumage, the prevailing colour being dark brown; but many of the species, when adult, have yellow necks.

S. antarcticus is said to have occurred in Ceylon; but Major Legge treats it as a doubtful visitor to that island.

Subfamily LARINÆ.

Genus LARUS, *Linn.*

754. LARUS ICHTHYAËTUS.

THE GREAT BLACK-HEADED GULL.

Larus ichthyaëtus, *Pall. Reis. Russ. Reichs*, ii. p. 713; *Dresser, Birds Eur.* viii. p. 369, pl.; *Hume, S. F.* i. p. 276; *Bl. B. Burm.* p. 162; *Saunders, P. Z. S.* 1878, p. 198; *Hume, S. F.* viii. p. 115; *Legge, Birds Ceylon*, p. 1046; *Oates, S. F.* x. p. 246. *Kroikocephalus ichthyaëtus*, *Jerd. B. Ind.* iii. p. 831.

Description.—*Summer plumage.* The whole head and upper neck black; the feathers on the eyelids white; remainder of the neck, the whole lower

plumage and tail pure white; back, rump, scapulars and wing-coverts bluish grey; primary-coverts and quills white, the earlier primaries with a black band near the tip, the first primary with the whole outer web black; the secondaries and tertiaries gradually turning to bluish grey on the inner webs and finally over the whole feather, and all broadly tipped with white.

In winter the head becomes white, the nape and sides of the head streaked with grey, and there is a black line in front of the eye.

The *young*, as commonly observed in Burmah, have the head white mottled with brown; neck pale fulvescent brown, extending in spots to the sides of the breast; back, scapulars and wing-coverts mingled brown and ashy; upper tail-coverts white; tail with the basal two thirds white, the remainder black tipped with white; primaries very dark brown, the first six with some white on the inner webs near their bases, the others with more white, some of it extending to the outer webs; secondaries broadly edged with white; tertiaries ashy tipped with white; the shafts of all the quills dark brown.

Irides brown; edges of the eyelids and gape vermilion; bill wax-yellow, vermilion towards the tip, with a black bar across both mandibles just beyond the angle of the gonys, and the extreme tips beyond this orange-yellow. (*Hume.*)

In the young the iris is dark brown; edges of eyelids black; gape and basal half of the margins pale yellowish; remainder of the bill very dark brown; legs, feet and webs pale purplish brown; claws black.

Length about 29 inches, tail 7·5, wing 19·5, tarsus 3·2, bill from gape 3·8. The immature bird measures: length 26 inches, tail 6·6, wing 18·6, tarsus 2·85, bill from forehead 2·2.

The Great Black-headed Gull occurs in the winter in various parts of Burmah. I noticed it to be abundant in the Sittang river every year, and numbers used to come and visit the Pegu Canal and the large ponds in connection with it. Neither Mr. Davison nor Dr. Armstrong appear to have observed it on the coast; but Mr. Blyth records it from the island of Ramree, and Mr. Shopland sent me a specimen shot in the Akyab harbour.

It is found over the whole of India and Ceylon, and it extends through Western Asia into Europe and North-east Africa; it is also recorded from Japan, and probably it will be found in China. Mr. Swarries, the taxidermist of the Phayre Museum at Rangoon, procured many fine specimens in full breeding-plumage at Bhamo, 600 miles up the Irrawaddy river. Its breeding-haunts appear to be the Caspian Sea and neighbouring regions. It is said to lay its eggs on sand-banks.

Like many other Gulls this species is found inland quite as frequently as on the coast. On the Sittang river I have observed as many as twenty

birds together; but most of those which visit Burmah are immature. They fly very gracefully, plunging into the water at frequent intervals and floating on its surface during the heat of the day.

755. *LARUS INNOMINATUS*.

THE LESSER BLACK-HEADED GULL.

Larus innominatus, Hume, *S. F.* viii. p. 394.

Description.—Like *Larus ichthyaëtus*, Pallas, but very much smaller, more black on the primaries, and no white ring round the eye. (*Hume*.)

This species was recently described by Mr. Hume under the above designation, and he is of opinion that it is the *Larus ichthyaëtus minor* of Schlegel. He gives the dimensions of an adult female as being—wing 16·5 inches, tail 7, tarsus 2·51, bill from gape 3, culmen 2·7.

The smaller size of this Gull and the absence of white feathers on the eyelids in the summer plumage appear sufficient to separate this species from the preceding. It is, moreover, to be recognized by the greater amount of black on the primaries. Mr. Hume gives an elaborate table showing the distribution of this black on the quills; but it will, I think, suffice to quote what he says regarding the first primary :—"Outer web and nearly terminal half" [? of the inner] "black, broad white band across both webs near tip, much less extended on outer web, small white tip."

This Gull was shot by Mr. Davison on the Ganjam coast at Gopalpore, and subsequently he observed it at Akyab. Mr. Hume also noticed it at the Sand Heads at the head of the Bay of Bengal. It will no doubt be found hereafter to have a much wider range.

756. LARUS BRUNNEICEPHALUS.

THE BROWN-HEADED GULL.

Larus brunneicephalus, *Jerd. Madr. Journ.* xii. p. 225; *Hume, Nests and Eggs*, p. 647; *Scully, S. F.* iv. p. 203; *Armstrong, S. F.* iv. p. 350; *Hume & Dav. S. F.* vi. p. 491; *Saunders, P. Z. S.* 1878, p. 197, fig. 10; *Hume, S. F.* viii. p. 115; *Legge, Birds Ceylon*, p. 1049; *Oates, S. F.* x. p. 246. *Xema brunneicephala*, *Jerd. B. Ind.* ii. p. 832; *Hume & Henders. Lahore to Yark.* p. 300, pl. xxxii.; *Bl. B. Burm.* p. 162; *Wardlaw Ramsay, Ibis*, 1877, p. 472. *Chroicocephalus brunneicephalus*, *David et Oust. Ois. Chine*, p. 521.

Description.—*Summer plumage.* The whole head to a distance of about an inch behind the eye smoky brown, becoming darker posteriorly and turning to deep black at the junction of the head with the neck, where it forms a complete collar; feathers on the lower eyelid and a short stripe over the eye white; the whole neck, upper tail-coverts and the whole lower plumage pure white; winglet and primary-coverts white, shading off into ashy interiorly; the tertiaries, secondaries, the last two primaries and the upper wing-coverts clear ashy; edge of the wing white; the smaller under wing-coverts white, the remainder ashy; the first six primaries white and black, the first two having the white merely at the bases, the others having an increasing quantity till on the sixth merely an inch of the tip is black; the first two primaries with a white spot near the tip of each; the white on the inner webs of these six gradually and increasingly becoming tinged with ashy; seventh primary with a white shaft, the webs ashy and the tip white, with a subterminal black mark on each web; the eighth primary entirely ashy, with a dusky patch near the tip of the inner web.

Winter plumage. The head becomes white with a few dusky streaks, and there is a brown patch behind the ear-coverts.

The *young* have the plumage in general similar to that of the adult in winter; but the head is very boldly streaked and the brown patch behind the ear-coverts is absent. Later on, the streaks become fewer, the brown patch is assumed, and the region of the eye is more or less dusky. The tail is tipped with dark brown for a distance of 1·5 inch on the central feathers; this tipping becomes reduced in size and disappears first on the outermost feathers. The white subterminal spots on the first two primaries are absent and the whole of the quills are light brown with whitish bases.

Iris stone-yellow; bill, legs, mouth and edges of the eyelids deep red; claws horny black.

Younger birds have the mouth salmon-colour; the basal two thirds of

the bill yellowish orange, the remainder dark brown ; iris greyish brown ; legs and toes orange, the webs duller ; claws black.

Length 18·5 inches, tail 5, wing 13·3, tarsus 2, bill from gape 2·4, middle toe and claw 1·9. The tail is square.

The Brown-headed Gull is a common winter visitor to all parts of the coast of British Burmah. It ascends the larger rivers to a considerable distance, being found on the Sittang river as high as Tonghoo.

This Gull is found in Burmah from the end of October to the middle of April, at which latter period birds in full summer plumage are not uncommon.

It occurs in winter over the whole of India, as far west as Scinde and south to Ceylon, and it is also met with in China and Cochin China. It appears to breed on the lakes north of the Himalayas, for Dr. Henderson observed it on the Pangong Lake in July.

This Gull is found as frequently on rivers and inland waters as on the coast. It is a very abundant species on all the tidal streams of Southern Pegu, flying about both singly and in large flocks. During the day, like most other Gulls, it is fond of sitting on the water.

Mr. Howard Saunders, when looking over my large series of this Gull, observed that all the birds which were sexed as males had some black on both sides the web of the seventh primary forming a bar ; those sexed as females, on the other hand, had the black only on the inner web. This of course may not prove a constant point of distinction between the sexes ; but it would be interesting to have it confirmed or disproved, and observers who have the opportunity of shooting these birds should direct their attention to the matter.

757. LARUS RIDIBUNDUS.

THE LAUGHING GULL.

Larus ridibundus, Linn. *Syst. Nat.* i. p. 225 ; Hume, *S. F.* i. p. 278 ; Dresser, *Birds Eur.* viii. p. 357, pl. ; Saunders, *P. Z. S.* 1878, p. 200, f. 12 ; Hume, *S. F.* viii. p. 115. *Xema ridibunda*, Jerd. *B. Ind.* ii. p. 832 ; *Bl. B. Burm.* p. 162. *Chroicocephalus ridibundus*, David et Oust. *Ois. Chine*, p. 520.

Description.—*Male and female in summer.* The whole head and upper part of the neck chocolate-brown ; remainder of the neck, the whole lower plumage, upper tail-coverts and tail pure white ; primary-coverts white ; back, rump, upper wing-coverts, scapulars, secondaries and tertiaries ashy ; first primary white, edged with black on the inner web, tipped with black

and with a black margin on the outer web; the next primary the same, but with no black margin on the outer web; the other primaries with a gradually diminishing amount of white and an increasing quantity of black, and the white turning to ashy on the later primaries.

In winter the head becomes white and there is a dusky patch behind the ear-coverts.

Bill, edges of eyelids and legs deep carmine; iris deep brown. (*Dresser.*)

Length about 15 inches, tail 5, wing 12 to 13, tarsus 1·8, bill at front 1·8.

The Laughing Gull, according to Dr. Jerdon, occurs in the Bay of Bengal and at the mouths of the Ganges and the Hooghley. It must consequently at times be found on or near the Burmese coast.

It is met with over a great portion of Asia, Africa and Europe, and it is a very well-known species in Great Britain.

Subfamily STERNINÆ.

Genus HYDROCHELIDON, *Boie.*

758. HYDROCHELIDON HYBRIDA.

THE WHISKERED TERN.

Sterna hybrida, *Pall. Zoogr. Ross.-Asiat.* ii. p. 338; *Oates, S. F.* iii. p. 348. **Sterna javanica**, *Horsf. Trans. Linn. Soc.* xiii. p. 198. **Viralva indica**, *Steph. in Shaw's Gen. Zool.* xiii. i. p. 169. **Hydrochelidon indica**, *Jerd. B. Ind.* ii. p. 837; *Hume, Nests and Eggs*, p. 648; *Hume & Henders. Lah. to Yark.* p. 301; *Bl. B. Burm.* p. 163. **Sterna innotata**, *Beavan, Ibis*, 1868, p. 404. **Hydrochelidon hybrida**, *Salvad. Ucc. Born.* p. 372; *Saunders, P. Z. S.* 1876, p. 640; *Dresser, Birds Eur.* viii. p. 315, pl.; *David et Oust. Ois. Chine*, p. 524; *Hume, S. F.* iv. p. 224; *Anders. Yunnan Exped.* p. 694; *Hume & Dav. S. F.* vi. p. 491; *Hume, S. F.* vii. p. 445, viii. p. 115; *Legge, Birds Ceylon*, p. 996; *Oates, S. F.* x. p. 246.

Description.—*Summer plumage.* Forehead, crown, nape and upper part of the hind neck black; a broad band from the bill, passing under the eye and down the sides of the neck, white; chin, throat and fore neck, comprising the whole space between the white bands, delicate pale grey, deepening on the breast and gradually turning to blackish brown on the abdomen and sides of the body; under tail- and wing-coverts white; upper

plumage, wings and tail rather dark grey, the primaries with white shafts and darker tips.

In winter the forehead, lores, face, sides of the neck and the whole lower plumage are pure white; the crown, nape and upper part of the hind neck white densely streaked with black; a space round the eye blackish; upper plumage, wings and tail as in summer.

Iris brown; bill red; legs and toes dull red.

Length 10 inches, tail 3·3, wing 9·2, tarsus ·8, bill from gape 1·4, fork of tail ·8.

I found the Whiskered Tern abundant in the Sittang river and in the adjoining creeks from November to May. Mr. Davison observed it in the plains between the Salween and the Sittang rivers. Mr. Blyth records it from Arrakan; and it will no doubt be found in all parts of the Province.

It occurs throughout a considerable portion of Europe and Africa and nearly the whole of Asia, extending through the Malayan archipelago to Australia. It appears to be resident in many parts, migratory in others, but it does not pass into the northern portions of Asia.

This Tern visits Burmah in the winter months, staying in the Province till May. I observed it only in tidal waters; but it is said to frequent sweet-water lakes and marshes. Large numbers are generally seen together flying backwards and forwards over the same piece of water for lengthened periods, and they probably feed on insects as well as on fish.

759. HYDROCHELIDON LEUCOPTERA.

THE WHITE-WINGED BLACK TERN.

Sterna leucoptera, Meisn. & Schinz, *Vög. Schweiz*, p. 264. *Hydrochelidon nigra* (Linn.), *apud Salvad. Ucc. Born.* p. 372. *Hydrochelidon leucoptera*, Dresser, *Birds Eur.* viii. p. 321, pl.; *Saunders, P. Z. S.* 1876, p. 641; *David et Oust. Ois. Chine*, p. 524; *Hume, S. F.* vii. p. 445, viii. p. 115; *Legge, Birds Ceylon*, p. 1000; *Oates, S. F.* x. p. 246.

Description.—*Summer plumage.* Head, neck, back, scapulars, innermost secondaries, and entire underparts, excepting the under tail-coverts, deep black; primary-quills blackish grey, fading to greyish white on the outer portion of the inner webs, except on the terminal portion, shafts of the feathers white; secondaries light French grey, rather darker on the inner web and the terminal portion; lesser wing-coverts and edge of the wing white; larger coverts French grey; tail, upper and under

tail-coverts pure white; under wing-coverts black and blackish grey, the edge of the wing mottled with white; beak reddish black; iris dark brown; legs and feet vermilion-red with a coral tinge. (*Dresser.*)

Winter plumage. Forehead and crown white; nape and occiput dark grey, as also the back and scapulars; the rump and upper tail-coverts pale greyish, almost white; throat, fore neck, under tail-coverts and under wing white; breast greyish; in front of the eye a black spot. (*Legge.*)

First autumn plumage. Tarsi and feet reddish brown; bill blackish; crown, occiput and nape brown; the white of the sides of the nape *encroaching on the dark colour of the nape just behind the ear*; interscapular region and scapulars earth-brown, the feathers tipped with fulvous; lower back brownish slaty; rump white; tail and the coverts slate-grey, the former tinged with brown and tipped with white; wing-coverts slate-grey, tipped with fulvous and brown; lesser coverts dark slate-grey edged with white; primaries blackish grey, the outer webs "frosted"; beneath white, passing round the hind neck. (*Legge.*)

Length 9·5 inches, tail 3, wing 8·2, tarsus ·75, bill from gape 1·25.

This species can be separated at all ages from the preceding by its smaller size; in winter plumage they are otherwise much alike.

I met with the White-winged Black Tern at the mouth of the Sittang about Kyasoo and on the Canal and adjoining creeks. It was always in company with the Whiskered Tern, from which it was undistinguishable when on the wing. I found it quite common in the winter months and procured a large series. It has not yet been recorded from any other part of Burmah.

It occurs in a considerable portion of Europe and Africa, and it extends through Asia as far north as South Siberia, ranging down through the Malayan archipelago to Australia. It breeds in Central Asia and in parts of Europe in swamps.

Genus STERNA, *Linn.*

760. STERNA ANGLICA.

THE GULL-BILLED TERN.

Sterna anglica, *Mont. Orn. Dict. Suppl.* *Sterna affinis*, *Horsf. Trans. Linn. Soc.* xiii. p. 199. *Gelochelidon anglicus*, *Jerd. B. Ind.* ii. p. 836; *Salvad. Ucc. Born.* p. 371; *Bl. B. Burm.* p. 163; *Hume & Dav. S. F.* vi. p. 491. *Sterna nilotica* (*v. Hass.*), *Hume, S. F.* i. p. 281; *Armstrong, S. F.* iv. p. 351. *Sterna anglica*, *Saunders, P. Z. S.* 1876, p. 644; *Dresser, Birds Eur.* viii. p. 295, pl.; *Hume, S. F.* viii. p. 115; *Legge, Birds Ceylon*, p. 1011; *Oates, S. F.* x. p. 246.

Description.—*Summer plumage.* Forehead, crown, nape and the adjoining part of the back of the neck black; upper plumage, wings and tail pale grey; lores, sides of the neck and the whole lower plumage pure white.

In winter the portion of the plumage of the head and neck which is black in summer turns white and is streaked with grey; the ear-coverts and a space round the eye are blackish, mottled here and there with whitish.

Bill, legs and feet black; iris brown. In summer the bill and legs are tinged with red.

Length about 15 inches, tail 5·5, wing 13·5, tarsus 1·4, bill from gape 2, fork of tail about 1·7.

The Gull-billed Tern was recorded from Arrakan by Mr. Blyth in his 'Catalogue;' and Dr. Armstrong met with it on the coast of the Irrawaddy Delta near Elephant Point. Mr. Hume has received it from the mouth of the Bassein Creek. I did not meet with it in the Sittang river or other apparently suitable localities.

It occurs in Europe and North Africa, extending through Asia to China and ranging down to Australia. It does not appear to retire in summer far north, for it breeds in Southern Europe, the Punjaub and Central Asia. It ranges to the coasts of America.

This species was observed by Dr. Armstrong only on the coast, where it hunted for its prey at the water's edge. In India and other parts it appears to be a marsh-Tern, frequenting rivers and being found over every portion of the interior. To Burmah it is not likely to be other than a winter visitor.

761. STERNA SEENA.

THE INDIAN RIVER-TERN.

Sterna seena, Sykes, *P. Z. S.* 1832, p. 171; *Hume, Nests and Eggs*, p. 650; *id. S. F.* iii. p. 193; *Saunders, P. Z. S.* 1876, p. 645; *Anders. Yunnan Exped.* p. 693; *Hume & Dav. S. F.* vi. p. 492; *Hume, S. F.* viii. p. 116; *Legge, Birds Ceylon*, p. 1003; *Oates, S. F.* x. p. 246; *Kelham, Ibis*, 1882, p. 201. *Sterna aurantia*, Gray & Hardw. *Ill. Ind. Zool.* i. pl. 69. f. 2; *Hume, S. F.* i. p. 281. *Seena aurantia*, Jerd. *B. Ind.* ii. p. 838; *Bl. B. Burm.* p. 163; *Wardlaw Ramsay, Ibis*, 1877, p. 472; *Oates, S. F.* v. p. 169.

Description.—*Summer plumage.* Forehead, crown, nape, lores and feathers under the eye black; upper plumage grey; tail paler grey, the outer feathers white; primaries grey on the inner webs, white on the outer; secondaries and tertiaries much the same colour as the back; wing-coverts with the outer webs more or less whitish; sides of the head and the whole lower plumage white, tinged with very pale grey on the breast, abdomen and sides of the body.

In winter the black portions of the head become white, a patch round the eye remaining dark brown and the ear-coverts being tinged with brown.

In the bird of the year the head is brownish and the feathers of the upper plumage are fringed with fulvous.

Iris brown; bill deep yellow; legs and feet red.

Length 18 inches, tail 8·5, wing 11·2, tarsus ·85, bill from gape 2·3, fork of the tail 5·5. These are the dimensions of a fine breeding female shot at Thayetmyo. The sexes are of the same size.

The Indian River-Tern is extremely abundant over the whole Province except perhaps in the southern half of Tenasserim, where Mr. Davison did not observe it, and it is a constant resident.

This species seems to be confined to India, Ceylon and Burmah. It extends up to Scinde on the north-west, and it appears to straggle south as far as Malacca, for Lieut. Kelham observed a specimen at that place.

This graceful Tern is met with in every part of Burmah where there is a river or even a pond. It breeds on the sand-banks of the larger rivers, depositing three eggs in March and April in a depression in the sand. Considerable numbers of these birds generally nest together. The eggs are buff of various shades, thickly blotched and marked with deep brown.

762. STERNA MELANOGAстра.

THE BLACK-BELLIED TERN.

Sterna melanogaster, Temm. Pl. Col. 434. *Sterna javanica*, Horsf. Zool. Res. in Java, Gen. Cat.; Jerd. B. Ind. ii. p. 840; Hume, Nests and Eggs, p. 652; Oates, S. F. v. p. 169; Wardlaw Ramsay, Ibis, 1877, p. 472; Anders. Yunnan Exped. p. 694. *Sternula jerdoni*, Beavan, Ibis, 1868, p. 403; Hume, S. F. iii. p. 348, note. *Sterna melanogastra*, Salvad. Ucc. Born. p. 377; Bl. & Wald. B. Burm. p. 163; Saunders, P. Z. S. 1876, p. 645; Hume & Dav. S. F. vi. p. 492; Hume, S. F. viii. p. 116; Legge, Birds Ceylon, p. 1006; Oates, S. F. x. p. 247. *Pelodes javanica*, Hume, S. F. iii. p. 193.

Description.—*Summer plumage.* Forehead, crown and nape black; lores, sides of the head, chin and throat white, shading off into pale grey on the breast; abdomen, vent and sides of the body smoky black; thighs and sides of the body white; the whole upper plumage, wings and tail grey, the primaries brown at the tips and the shafts white.

In winter the black portions of the head become white streaked with blackish, and the black on the lower plumage disappears, being replaced by pale grey.

Bill orange-yellow, turning to yellow at the tip; iris blackish brown; legs and feet orange-red; claws black, that of the hind toe pale yellow.

Length 13·5 inches, tail 6·8, wing 9·3, tarsus ·55, bill from gape 1·8, fork of the tail 4.

The Black-bellied Tern is abundant throughout the Province and is a constant resident.

It occurs throughout India up to Scinde on the north-west and in Ceylon. It is spread throughout the Indo-Burmese countries, and is recorded from Cochin China by Dr. Tiraud, who states that it is common in that country. Count Salvadori enters it with doubt as an inhabitant of Borneo; but there is reason now to think that it is not found in that island nor in any part of the Malay archipelago.

It was most probably to a specimen of this Tern in immature plumage that Lord Walden referred, species 638, in Mr. Blyth's Catalogue, p. 163. On asking Capt. Wardlaw Ramsay to allow me to see this specimen, he replied that it could not be found, and Mr. Howard Saunders has no recollection of having seen it. He kindly informs me that there was no specimen of a Tern in Capt. Wardlaw Ramsay's collections from Burmah about which any question could arise, and consequently he made no note of this particular specimen, which he has no doubt was submitted to him for examination together with other Terns.

This Tern frequents inland waters, ponds, marshes and rivers, and is

very abundant in most parts of the country, but perhaps not so general as the last. It breeds in March and April, laying three eggs on the bare sand on banks in large rivers. The eggs are very similar to those of the preceding, but smaller.

763. STERNA DOUGALLI.

THE ROSEATE TERN.

Sterna dougallii, *Mont. Orn. Dict. Suppl.*; *Saunders, P. Z. S.* 1876, p. 652; *Dresser, Birds Eur.* viii. p. 273, pl.; *Legge, S. F.* iii. p. 376, iv. p. 246; *Hume & Dav. S. F.* vi. p. 492; *Hume, S. F.* viii. p. 116; *Parker, S. F.* ix. p. 489; *Legge, Birds Ceylon*, p. 1033; *Hume, S. F.* x. p. 246, note. *Sterna paradisea*, *Keys. & Blas. Wirb. Eur.* p. 247; *Hume, S. F.* ii. p. 501 (*nec Brin.*). *Sterna gracilis*, *Gould, P. Z. S.* 1847, p. 222; *id. Birds Austr.* vii. pl. 27; *Hume, S. F.* ii. p. 317; *Legge, S. F.* iii. p. 376. *Sternula korustes*, *Hume, S. F.* ii. p. 318.

Description.—*Summer plumage.* Crown and nape deep glossy black; back and upper surface of the wings delicate light French grey; rump and upper tail-coverts white, washed with grey; rest of the plumage pure white, except that the under surface of the body is tinged with delicate light rose-colour; first primary with the outer web black, the rest having this part hoary grey; inner webs of the primaries dark grey, broadly margined to the tip of the feather with white; bill red at the base, otherwise black; iris dark brown; legs reddish orange.

Winter plumage. Forehead and cheeks white; crown and nape brownish black, slightly marked with white; lesser wing-coverts along the edge brownish; tail much shorter than in summer and the underparts without any trace of rose-colour; otherwise coloured as in summer plumage. (*Dresser.*)

Legs and feet bright vermilion-red; claws black; irides deep brown; bill black; gape and base of lower mandible varied from reddish fleshy to vermilion-red. (*Davison.*)

Length up to 15 inches, tail up to 7·5, wing 8·7, tarsus ·8, bill from gape 2, fork of tail about 4.

The Roseate Tern was observed by Mr. Davison in Tenasserim off the mouth of the Laynah Creek; and Mr. Hume states that he has received several specimens from the Bassein estuary.

It has a wide range, being found in Europe, Africa and America. It has been met with in various parts of India, Ceylon and the Andaman Islands, and it extends down to Australia.

This beautiful Tern appears to frequent only the sea-coasts and not to come inland. It breeds on isolated rocks and sand-banks. Mr. Parker found a colony nesting in June on a low bank on Adam's Bridge, Ceylon; each nest, a mere depression in the sand, contained one or two eggs, and their colour appears from his description to have been of the usual type, buff blotched with brown.

764. STERNA MEDIA.

THE ALLIED TERN.

Sterna media, *Horsf. Trans. Linn. Soc.* xiii. p. 198; *Salvad. Ucc. Born.* p. 377; *Saunders, P. Z. S.* 1876, p. 655; *Hume, S. F.* v. p. 301; *Dresser, Birds Eur.* viii. p. 285, pl.; *Hume & Dav. S. F.* vi. p. 493; *Hume, S. F.* viii. p. 116; *Legge, Birds Ceylon*, p. 1030. *Sterna bengalensis*, *Less. Tr. d'Orn.* p. 621; *Hume, Nests and Eggs*, p. 655; *id. S. F.* i. p. 284, ii. p. 318, iv. p. 474. *Thalasseus bengalensis*, *Jerd. B. Ind.* ii. p. 843; *Bl. B. Burm.* p. 163.

Description.—*Summer plumage.* Whole head, including the forehead and occipital crest, glossy black; lores, face, sides of the neck and all the lower parts white; upper plumage light silvery grey, paling slightly on the tail; quills dark grey, white on the inner portion of the inner webs. (*Jerdon.*)

Winter plumage. The forehead and lores white; the crown white, streaked with brown; the nape, crest, a band on the side of the crown running up to the eye, and a patch in front of the eye black.

Iris brown; bill orange-yellow; legs and feet black, soles of toes yellowish. (*Legge.*)

Length up to 16 inches, tail up to 6, wing 12, tarsus 1.1, bill from gape 3, fork of tail a little more than 2.

The Allied Tern is said by Mr. Blyth to be found on the coasts of Arrakan and Tenasserim. In this case it must also be found on the coast of Pegu. No recent observer in Burmah has met with it.

It occurs in the Mediterranean sea, ranging down the eastern coast of Africa and along the whole southern coast of Asia through the archipelago to Australia.

This Tern frequents the sea-coast and is likely to be met with in Burmah at all seasons of the year. Its breeding-haunts in Indian waters have not yet been discovered.

765. STERNA CASPIA.

THE CASPIAN TERN.

Sterna caspia, *Pall. Nov. Comm. Petrop.* xiv. p. 582; *Hume, S. F.* i. p. 280; *Oates, S. F.* iii. p. 347; *Saunders, P. Z. S.* 1876, p. 656; *Dresser, Birds Eur.* viii. p. 289, pl.; *Hume, S. F.* viii. p. 115; *Parker, S. F.* ix. p. 487; *Legge, Birds Ceylon*, p. 1008; *Oates, S. F.* x. p. 246. *Sylochelidon caspius*, *Jerd. B. Ind.* ii. p. 835; *David et Oust. Ois. Chine*, p. 522.

Description.—*Summer plumage.* Forehead, crown, ear-coverts, nape and the upper part of the hind neck black; upper plumage, wings and tail grey; the primaries blackish at the tip; sides of the neck and the whole lower plumage white.

In winter the portions of the head which are black in summer are white streaked with black, except the cheeks, ear-coverts and feathers round the eye, which remain more or less dusky.

Bill orange, bluish brown near the tip, and the tip yellow; iris dark brown; legs and feet black; claws black above, white below.

Length 20 inches, tail 5·5, wing 15·7, tarsus 1·75, bill from gape 3·8; tail but slightly forked.

I shot two Caspian Terns in June at the mouth of the Sittang river, and it has not yet been recorded from any other part of the Province.

It has an immense range, being found on the coasts of Europe, North America and Africa, and extending through Asia down to Australia and New Zealand.

This large Tern is usually met with singly or in pairs; and it may be looked for in Burmah at all times of the year, for I procured it in June, and Mr. Parker found it breeding in Ceylon in the same month. The small colony this gentleman discovered at Adam's Bridge had deposited their eggs on a sand-bank, each nest, or rather hollow in the sand, containing either one or two eggs. This Tern is found not only on the coast but also far inland on the larger rivers and tanks.

766. STERNA BERGII.

THE LARGE CRESTED TERN.

Sterna bergii, *Licht. Verzeich.* p. 80; *Hume, Nests and Eggs*, p. 655; *id. S. F.* i. p. 283, iv. p. 470; *Saunders, P. Z. S.* 1876, p. 657; *Butler, S. F.* v. p. 298; *Hume & Dav. S. F.* vi. p. 493; *Hume, S. F.* viii. p. 116; *Parker, S. F.* ix. p. 490; *Legge, Birds Ceylon*, p. 1026; *Hume, S. F.* x. p. 247, note; *Kelham, Ibis*, 1882, p. 201. **Sterna cristata**, *Steph. in Shaw's Gen. Zool.* xiii. i. p. 146; *Salvad. Ucc. Born.* p. 376. **Sterna velox**, *Rüpp. Atlas*, p. 21, t. 13. **Thalasseus cristatus**, *Jerd. B. Ind.* ii. p. 842; *Bl. B. Burm.* p. 163. **Thalasseus bergii**, *David et Oust. Ois. Chine*, p. 523.

Description.—*Summer plumage.* Crown, nape and lengthened occipital crest black; forehead, lores, cheeks, ear-coverts, the neck all round and the whole lower plumage pure white; upper plumage, wings and tail dark grey; the base of the lateral tail-feathers white; shaft and interior half of the inner web of the primaries white; secondaries tipped and edged inside with white; the primaries tipped dark brown, and the other portion more or less silvery grey.

In winter the crown becomes white streaked with black, and the nape and crest are dull black.

Bill pale yellow; legs and feet black, soles yellowish; irides deep brown. (*Butler.*)

Length about 21 inches, tail 7·5, wing 15, tarsus 1·3, bill from gape 3·6, fork of tail about 3·5.

The Large Crested Tern was observed by Mr. Davison along the coast of the southern part of Tenasserim, and Mr. Hume states that it is common at the mouth of the Bassein Creek. Mr. Shopland informs me that he has met with it on the coast of Arrakan and that it breeds on Oyster Island.

It is found along the whole east coast of Africa and throughout Southern and Eastern Asia up to China, extending through the archipelago to Australia and some of the islands of the Pacific Ocean. It appears to be everywhere resident.

This Large Tern is confined to the open sea and shores. Its eggs have been found on the island of Astolah in the Gulf of Oman by Capt. Butler, and at Adam's Bridge, Ceylon, by Mr. Parker. They are laid on the bare rock or sand in May and June, and are described as being very beautiful. In the former locality immense numbers of these Terns breed in company, the sitting birds being closely packed together.

767. STERNA MELANAUCHEN.

THE BLACK-NAPED TERN.

Sterna melanauchen, Temm. Pl. Col. 427; Saunders, P. Z. S. 1876, p. 661; David et Oust. Ois. Chine, p. 526; Hume, S. F. v. p. 325. **Onychoprion melanau-chen**, Jerd. B. Ind. ii. p. 844. **Sternula melanauchen**, Hume, Nests and Eggs, p. 656; id. S. F. ii. p. 319. **Onychoprion sumatrana** (Raffl.), Salvad. Ucc. Born. p. 374. **Sterna sumatrana** (Raffl.), Hume & Dav. S. F. vi. p. 493; Hume, S. F. viii. p. 116, x. p. 247, note; Kelham, Ibis, 1882, p. 202.

Description.—*Male and female.* The whole plumage white, the back, wings and tail tinged with grey; outer web of the first primary dark grey; a band commencing on the lores, passing through the eye and widening out to form a large triangular patch on the back of the neck, black. In fresh birds and in skins which are not very old the whole of the white parts of the plumage are suffused with roseate. As far as I am aware there is no seasonal change of plumage.

Bill black, the extreme points of both mandibles pale yellowish horny; feet black; irides wood-brown. (Hume.)

Length about 14 inches, tail 6, wing 8·6, tarsus ·7, bill from gape 2·1, fork of the tail about 3·5.

The Black-naped Tern was noticed by Mr. Davison off the mouth of the Laynah Creek in Tenasserim; and Mr. Hume states that he has received it from the mouth of the Bassein Creek. It is likely to be met with along the whole coast of the Province.

It is found from the Andamans throughout the Malay peninsula and archipelago to Australia and New Caledonia, and it ranges up the Chinese coast to Amoy. It is resident in places where it occurs, and it breeds at the Andamans, on the Chinese coast and many other localities.

It seems very doubtful to which species of these small Terns *Sterna sumatrana* of Raffles is applicable. Mr. Hume is of opinion that this name is referable to the present species; and Mr. Howard Saunders, on the other hand, is of opinion that it properly applies to the small Tern which Mr. Hume has recently named *S. saundersi*. It will, I think, always remain a matter for dispute, for Raffles's description applies equally well to either species.

Mr. Hume found this Tern breeding near Port Blair in the Andamans in July and August.

768. STERNA SINENSIS.

THE EASTERN LITTLE TERN.

Sterna sinensis, *Gm. Syst. Nat.* i. p. 608; *Saunders*, *P. Z. S.* 1876, p. 662; *Hume*, *S. F.* v. p. 325, viii. p. 116; *Legge*, *Birds Ceylon*, p. 1019. *Sternula minuta* (*L.*), *Hume*, *Nests and Eggs*, p. 654 (part.); *Oates*, *S. F.* iii. p. 349; *Wardlaw Ramsay*, *Ibis*, 1877, p. 472. *Sterna minuta*, *apud Wald.* in *Bl. B. Burm.* p. 163; *Hume & Dav.* *S. F.* vi. p. 492. *Sternula sinensis*, *David et Oust.* *Ois. Chine*, p. 527. *Sterna gouldi*, *Hume S. F.* v. p. 326; *Cripps*, *S. F.* vii. p. 314; *Hume*, *S. F.* viii. p. 116, ix. p. 131; *Oates*, *S. F.* x. p. 247.

Description.—*Summer plumage.* Forehead, continued back to a point on either side to just over the eye, white; crown, nape, the upper part of the hind neck and a streak from the nostril through the eye to the nape deep black; upper plumage pale grey, becoming paler and whitish on the upper tail-coverts and tail; first two primaries nearly black, margined on the inner web with white; remaining primaries and secondaries grey, the latter tipped with white on the outer webs; shaft of first primary white, that of the second more or less white; remainder of the plumage white.

Winter plumage. The crown is white, gradually turning to dusky and running into the nape, which remains black; the black of the nape extending to behind the eye; the band from the nostril to the eye is lost, there being merely a dusky spot in front of the eye; remainder of plumage as in summer.

The *young bird* has the whole upper plumage, including the wing-coverts, tertiaries and tail, beautifully mottled with black and white.

Iris always brown; in summer the bill is yellow broadly tipped with black, and the legs and feet are orange-yellow; in winter the bill is dark brown, nearly black at tip, and the legs and toes are reddish brown; claws black.

Length 10 inches, tail 4, wing 7, tarsus .75, bill from gape 1.7; the pointed outer tail-feathers are seldom perfect, but when they are so the fork of the tail measures rather more than 2 inches.

S. minuta, the European Little Tern, and *S. saundersi*, which is found in the Malay archipelago and extends sometimes to Ceylon, have the shafts of the first three primaries blackish brown. The Little Tern which inhabits the greater part of India and the whole of Burmah has been separated by Mr. Hume under the name *S. gouldi*. The differences between this race and the true *S. sinensis* are so minute that I cannot consider the two birds worthy of separation; and Mr. Howard Saunders, who examined the large series of these small Terns which I brought from Burmah, assigns the whole of them to *S. sinensis*. Mr. Hume's latest statement on the subject of these small Terns will be found in *S. F.* ix. p. 131.

The Eastern Little Tern is abundant throughout Pegu. Mr. Davison did not meet with it in Tenasserim, nor does Mr. Blyth record it from Arrakan. It is unlikely, however, to be absent from these two Divisions, for it is by no means a local species nor one that is rare.

It appears to extend over a considerable portion of India (*S. gouldi*) and it is found in Ceylon. It ranges along the coast and through the archipelago to Australia and northwards to China.

This small species is very abundant in all the larger rivers; also in marshes and on large pieces of water. It is perhaps most abundant in those parts of the river which are within tidal influence. It breeds in Burmah during March and April, depositing four eggs in a small depression on a sand-bank.

769. STERNA ANÆSTHETA.

THE PANAYAN TERN.

Sterna anæsthetus, Scop. *Del. Flor. et Faun. Insub.* ii. p. 92; *Saunders*, *P. Z. S.* 1876, p. 664; *Hume*, *S. F.* iv. p. 474; *Butler*, *S. F.* v. p. 301; *Hume & Dav.* *S. F.* vi. p. 493; *Hume*, *S. F.* viii. p. 116; *Legge*, *Birds Ceylon*, p. 1040. *Sterna panayensis*, *Gm. Syst. Nat.* i. p. 607. *Onychoprion anæsthetus*, *Jerd. B. Ind.* ii. p. 844; *Hume*, *S. F.* ii. p. 320; *Salvad. Ucc. Born.* p. 374. *Haliplana anæstheta*, *David et Oust. Ois. Chine*, p. 528.

Description.—*Summer plumage.* Forehead and a broad streak passing backwards over the eye to a point just beyond it white; crown, nape, ear-coverts and lores black; chin, throat, cheeks, sides of the neck and the whole lower plumage white; the breast, abdomen and flanks tinged with grey; hind neck grey; back, rump, upper tail-coverts, upper wing-coverts, scapulars and tertiaries smoky brown; edge of the wing white; lesser upper wing-coverts blackish; quills blackish brown; tail smoky brown, the outermost pair of feathers white except at the tip.

In winter plumage the grey tinge on the breast, abdomen and flanks disappears; the crown becomes dull white streaked with blackish, and the black band from the lores through the eyes disappears or is indicated only by a few brown mottlings; the hind part of the nape remains black and forms a collar joining the ear-coverts.

Bill, legs and feet black; irides deep brown. (*Hume*.)

Length up to 15 inches, tail up to 7, wing 9·5, tarsus ·8, bill from gape 2.

The Panayan Tern occurs in the Bay of Bengal, having been observed near the Andaman Islands and at other points, and it is of common

occurrence in Ceylon. It must consequently at times be found near the Burmese coast. In fact Mr. Davison states that he thinks he saw this Tern in the Mergui archipelago, and as he knows the bird well he is not likely to have been mistaken.

It has a very wide range, being found in all the intertropical seas of the globe.

This Tern is entirely oceanic. Mr. Hume discovered them breeding on the Vingorla rocks off the western coast of India, and it has also been found nesting in the Red Sea.

770. STERNA FULIGINOSA.

THE SOOTY TERN.

Sterna fuliginosa, *Gm. Syst. Nat.* i. p. 605; *Hume, S. F.* iv. p. 477; *Saunders, P. Z. S.* 1876, p. 666; *Dresser, Birds Eur.* viii. p. 307, pl.; *Penrose, Ibis*, 1879, p. 277; *Hume, S. F.* viii. p. 116; *Legge, Birds Ceylon*, p. 1037; *Oates, S. F.* x. p. 247. *Onychoprion fuliginosus*, *Salvad. Ucc. Born.* p. 373. *Haliplana fuliginosa*, *David et Oust. Ois. Chine*, p. 528.

Description.—*Male and female.* Forehead, produced back on either side as a streak extending to just over the middle of the eye, white; a band covering the lores and reaching back to the eye, the crown, nape and hind neck black; remainder of the head and neck and the whole lower plumage pure white; the whole upper plumage brownish sooty; the primaries tinged with grey, the shafts reddish brown; outer tail-feathers white except the terminal third, which is brown like the rest of the tail.

The *young bird of the year* is sooty brown all over; the back, rump, upper tail-coverts, tail, scapulars and wing-coverts broadly tipped with dull white.

Iris deep brown; bill, legs and feet blackish.

Length up to 17 inches, tail 7·5, wing 11·8, tarsus ·9, bill from gape 2·4, fork of the tail nearly 3 inches.

This species bears a close resemblance to the preceding; but Mr. Howard Saunders has pointed out a structural peculiarity in the foot by which the two birds may be unhesitatingly identified. In *S. anæsthesia* the webbing on the outer side of the middle toe reaches only to the first joint of that toe; in *S. fuliginosa* the webbing of the same part reaches to the root of the claw.

I shot a young specimen of this species in June on the Canal not far from the mouth of the Sittang river. It has not again been observed in Burmah, but it is doubtless not uncommon on the coast.

It has as wide a range as the last, being found in all the intertropical seas of the globe, and occasionally wandering some distance out of this zone, even as far as Great Britain.

This Tern is an inhabitant of the wide ocean, being most frequently found near lonely islands and isolated rocks. Mr. Hume found it breeding in enormous numbers in January and February on one of the Laccadive Islands. Many of its breeding-haunts are known; but the most remarkable place of this kind is, perhaps, on Ascension Island, where the scene presented to the visitor is extremely curious and has acquired the name of "Wideawake Fair."

Genus GYGIS, *Wagler*.

771. GYGIS ALBA.

THE WHITE NODDY.

Sterna alba, *Sparrm. Mus. Carls.* i. pl. xi.; *Schlegel, Mus. Pays-Bas, Sternæ*, p. 35.

Sterna candida, *Gm. Syst. Nat.* i. p. 607. *Gygis candida*, *Gould, B. Austr.* vii. pl. 30; *Saunders, P. Z. S.* 1876, p. 667; *David et Oust. Ois. Chine*, p. 529; *Penrose, Ibis*, 1879, p. 279. *Gygis alba*, *Salvad. Ucc. Born.* p. 375; *Hume, S. F.* vii. p. 447, viii. p. 116.

Description.—The whole plumage pure white; the shafts of the quills and the feathers immediately round the eye black.

Bill in the dry specimen black; tarsus and toes brown, said to be orange in the live bird.

Length about 12 inches, tail 4·6, wing 9·3, tarsus ·45, bill from gape 2·3, at front 1·75.

As noted by Mr. Hume, there is a specimen of this bird in the Leyden Museum procured by Dussumier in the Bay of Bengal; and Mr. Hume further notes that he believes that he has twice seen this species in the same seas. In any case it must at times occur sufficiently near the Burmese coast to justify its title to a place in this work.

The White Noddy is an oceanic Tern of very wide range, but confined more or less to the tropics. It breeds on islands and rocks in various parts of the world, laying a single egg on the bare ground or sometimes on a low flat branch of a tree, without making any nest.

An allied species is *G. microrhyncha*, *Saunders*, which differs in being smaller and in having the shafts of all the primaries white except those of

the first three, which are clay-coloured. This is a much rarer species ; and I think we are justified in identifying the *Sterna alba* of Sparrman with the larger and better known species.

Genus ANOUS, *Stephens*.

772. ANOUS STOLIDUS.

THE COMMON NODDY.

Sterna stolidus, *Linn. Syst. Nat.* i. p. 227. *Anous stolidus*, *Gould, B. Austr.* vii. pl. 34; *Jerd. B. Ind.* ii. p. 845; *Salvad. Ucc. Born.* p. 379; *Hume, S. F.* ii. p. 320, iv. p. 478; *Saunders, P. Z. S.* 1876, p. 669; *David et Oust. Ois. Chine*, p. 529; *Hume, S. F.* viii. p. 116; *Legge, Birds Ceylon*, p. 1043.

Description.—*Male and female.* The whole plumage chocolate-brown, the quills, tail and lesser wing-coverts almost black ; forehead and crown greyish white, gradually paling off on the hind neck ; a black streak on the upper eyelid produced forwards onto the lores ; a small line of white on the lower eyelid.

Irides deep brown ; bill black, orange at the angle of the gape ; legs and feet dusky vinous purple ; the webs paler and more dove-colour ; claws black. (*Hume.*)

Length 16 inches, tail 6·2, wing 11, tarsus ·95, bill from gape 2·4; tail rounded, the outer feathers falling short of the tip by about 2 inches.

The Common Noddy is stated by Dr. Jerdon to occur in the Bay of Bengal.

It is met with throughout the intertropical seas of the whole world, sometimes ranging north and south of the tropics.

The Noddies are black Terns with rounded tails ; they are found far out at sea and they breed on rocks and islands. Mr. Hume found the present species breeding on one of the Laccadive Islands in February. The eggs are usually laid on the sand, but in some places they are said to construct nests of seaweed on bushes and rocks ; each nest contains but a single egg.

773. ANOUS TENUIROSTRIS.

THE GREY-FACED NODDY.

Sterna tenuirostris, Temm. Pl. Col. 202. *Anous melanops*, Gould, P. Z. S. 1845, p. 103; *id. B. Austr.* vii. pl. 35. *Anous senex* (Leach), *apud Hume*, S. F. ii. p. 321, iv. p. 480. *Anous tenuirostris*, Saunders, P. Z. S. 1876, p. 670, pl. lxi. fig. 1; *Hume*, S. F. viii. p. 116.

Description.—Forehead, crown, nape and upper neck a clear French grey, shading off imperceptibly into the surrounding parts; a black band surrounding the upper half and front of the eye, broader in front; lores, cheeks and sides of the neck intermediate in colour between the crown and the throat, which with the whole remaining plumage is chocolate-brown; the wings and tail almost black; outer web of the first primary deep black; shafts of the primaries rufous-brown; a narrow line of white on the lower eyelid and a still smaller one on the upper.

Length about 12 inches, tail 4·5, wing 8·3, tarsus ·8, bill from gape 2·1.

The Grey-faced Noddy is stated by Mr. Hume to occur in the Bay of Bengal, and one specimen obtained at Port Blair came within his own observation.

It has almost as wide a range as the preceding, but it is especially abundant in the Australian seas. It breeds on some of the islands in Torres Straits, and lays a single egg, which is stone-coloured marked with red and brown.

774. ANOUS LEUCOCAPILLUS.

THE WHITE-HEADED NODDY.

Anous leucocapillus, Gould, P. Z. S. 1845, p. 103; *id. B. Austr.* vii. pl. 36; *Hume*, S. F. ii. p. 322, iv. p. 480; *Saunders*, P. Z. S. 1876, p. 670, pl. lxi. fig. 3; *Hume*, S. F. viii. p. 116. *Anous tenuirostris* (Temm.), *apud Jerd. B. Ind.* ii. p. 846.

Description.—Forehead, crown and nape white, very abruptly defined from the surrounding parts; a narrow line of white on the lower eyelid; lores blackish; the whole plumage chocolate-brown, the quills darker.

Bill black, gullet pale yellow; feet black, with the web fleshy yellow. (*Jerdon*.)

Length about 13 inches, tail 5, wing 9, tarsus ·95, bill from gape 2·2.

The second of the Noddies described by Dr. Jerdon is evidently referable to the present species ; for he refers the reader to the 36th plate of Gould's 'Birds of Australia,' where *A. leucocapillus* is beautifully figured. Dr. Jerdon states that it occurs in the Bay of Bengal ; and Mr. Hume identifies with the present bird a specimen contained in the Indian Museum at Calcutta from the mouth of the Ganges. He also records it from the northern portion of the Indian Ocean.

The White-headed Noddy has a smaller range than the two preceding species, being confined almost entirely to the seas of Australia and New Guinea, but wandering, as all these sea-birds do, to considerable distances from its usual haunts.

Other species of Noddies are :—

A. melanogenys, similar to *A. tenuirostris* in general appearance ; the whole plumage is a dark chocolate-brown ; the forehead and crown clear greyish white, shading off into the nape and hind neck ; lower eyelid white ; a small squarish patch behind the eye, lores and face black : wing 8·8 inches, tail 4·8.

A. cæruleus has the whole head and neck and lower plumage white ; the wings, tail and back grey. It is of strikingly different appearance from all the other Noddies.

Genus RHYNCHOPS, Linn.

775. RHYNCHOPS ALBICOLLIS.

THE INDIAN SKIMMER.

Rhynchops albicollis, Swains. *Anim. in Menag.* p. 360 ; *Jerd. B. Ind.* ii. p. 847 ; *Hume, Nests and Eggs*, p. 656 ; *id. S. F.* iii. p. 193 ; *Bl. B. Burm.* p. 164 ; *Wardlaw Ramsay, Ibis*, 1877, p. 472 ; *Hume & Dav. S. F.* vi. p. 493 ; *Hume, S. F.* viii. p. 116 ; *Oates, S. F.* x. p. 247.

Description.—*Male and female.* Crown, nape, back, rump, scapulars and wing-coverts sooty brown ; upper tail-coverts white at the sides, the longer central feathers brown on the inner web, white on the outer ; tail white, the central pair of feathers brown on the inner web ; primaries dark brown, the later ones tipped with whitish ; secondaries very broadly tipped with white ; tertiaries broadly margined with white ; forehead, face, sides and back of the neck and the whole lower plumage pure white.

Bill bright red, turning yellow at the tip of both mandibles ; iris dark brown ; legs bright red ; claws blackish horn-colour.

Length 18 inches, tail 5, wing 16, tarsus 1·2, bill from gape 4·2. The female is of the same size.

The Indian Skimmer or Scissordill (as it is sometimes termed, from the very remarkable shape of the bill) is very abundant in all the large rivers of the Province. Mr. Davison observed it only in the Sittang and Salween rivers; but Dr. Mason records it from the Tavoy river, much further south.

It is spread over the Indian peninsula, but it is not found in Ceylon. It is probably common in the Indo-Burmese countries; but I cannot discover that it has ever been observed in China, Siam, Cochin China, or any portion of the Malay peninsula.

This Skimmer frequents large rivers, both where the water is tidal and where it is sweet. It occurs in flocks, some of these occasionally numbering several hundred individuals, but more usually they go in small companies of only four or five. They rest on sand-banks during the day-time and become very active towards dusk, flying about and skimming the surface of the water in a very graceful fashion. They appear to feed principally on oil and fatty matter floating on the water, for I have never seen them plunge into the water to capture fish. Occasionally they come inland and fly over ponds and backwaters. They breed on sand-banks in March and April, laying four eggs on the bare sand.

Order XVI. TUBINARES.

Family PROCELLARIIDÆ.

Genus OCEANITES, *Keys. & Blas.*

776. OCEANITES OCEANICUS.

WILSON'S PETREL.

Procellaria oceanica, Kuhl, *Beitr. z. Zool.* p. 136, pl. 10. fig. 1. *Procellaria wilsoni*, Bonap. *Journ. Acad. Phil.* iii. pt. 2, p. 231, pl. 9. fig. 2. *Thalassidroma wilsoni*, Gould, *B. Austr.* vii. pl. 65; *Butler, S. F.* v. p. 291. *Thalassidroma* —?, *Jerd. B. Ind.* ii. p. 827; *Hume, S. F.* ii. p. 317; *Legge, S. F.* iii. p. 375. *Oceanites oceanicus*, Sharpe, *Rep. Trans. Venus Exped.* p. 123; *Dresser, Birds Eur.* viii. p. 505, pl.; *Hume & Dav. S. F.* vi. p. 490; *Butler, S. F.* vii. p. 178; *Hume, S. F.* viii. p. 115; *Legge, Birds Ceylon*, p. 1056.

Description.—General colour dark sooty brown; upper tail-coverts,

flanks and lateral under tail-coverts white; the central median wing-coverts and the later secondaries hair-brown, edged paler.

Bill dull black; legs and feet polished black, with a conspicuous pale yellow patch in the centre of each web; irides blackish. (*Butler.*)

Length 7 inches, tail 3, wing 5·8, tarsus 1·4, bill from gape ·7.

Storm-Petrels have been known for many years past to frequent the Indian seas; but until lately no specimen had been procured for identification. In 1875 Capt. Butler secured several birds which proved to be the present species. Mr. Davison observed large numbers of Petrels one year off the Tenasserim coast; and there can be little doubt that his surmise is correct that they all belonged to this same species. I therefore introduce it into my work.

Wilson's Petrel is found in all the seas of the tropical and temperate zones, and may be recognized not only by the pale patch on the wing, but also, when alive or when recently killed, by the yellow patches on the webs between the toes.

It is an oceanic bird, seldom going to land except for the purpose of breeding. It lays a single egg marked with small red freckles, in chinks and crevices of rocks or under stones.

Genus DAPTION, *Stephens.*

777. DAPTION CAPENSIS.

THE CAPE PETREL.

Procellaria capensis, *Linn. Syst. Nat.* i. p. 213. *Daption capensis*, *Gould, B. Austr.* vii. pl. 53; *Sharpe, Rep. Trans. Venus Exped.* p. 118; *Hume, S. F.* vii. pp. 442, 463, viii. p. 115; *Legge, Birds Ceylon*, p. 1056.

Description.—The whole head, chin, sides and back of the neck, upper back and lesser wing-coverts sooty brown; back, rump, upper tail-coverts, scapulars and tertiaries white, each feather broadly tipped with sooty brown; secondaries more broadly tipped; median and greater wing-coverts with the outer webs and the tips of the inner sooty brown, remainder of the inner web white; primaries blackish, with a broad white marginal band on the inner web; basal two thirds of tail white, remainder sooty brown; the whole lower plumage from the chin white; under tail-coverts tipped with sooty brown.

Length about 14 inches, tail 4, wing 9, tarsus 1·7, bill from gape 1·5; the tail rounded, the outermost feathers falling short of the tip of the tail by less than 1 inch.

Bill blackish brown; irides and feet very dark brown. (*Gould.*)

The Cape Petrel, or Cape Pigeon as it is called by sailors, was obtained by Mr. Hume in the straits between Ceylon and the mainland.

It is found in all the seas of the southern hemisphere, wandering not unfrequently to the north of the equator, and it is certain to be found in the vicinity of the Burmese coast at times.

This well-known Petrel has wonderful powers of flight, following ships for days together and apparently seldom resting. Common as it is, little or nothing seems to be known of its breeding-haunts.

Genus PUFFINUS, *Briss.*

778. PUFFINUS CHLORORHYNCHUS.

THE GREEN-BILLED SHEARWATER.

Puffinus chlororhynchus, *Lesson, Traité*, p. 613; *Newton, Ibis*, 1861, p. 181, 1867, p. 359; *Legge, Birds Ceylon*, p. 1054. *uffinus* — ?, *Legge, S. F.* iii. p. 374; *Hume, S. F.* viii. p. 115.

Description.—The whole plumage sooty brown, darkest on the wings and tail, paler beneath, tinged with glaucous on the chin and throat.

Iris dusky; bill dusky greenish; legs and feet fleshy white. (*Legge.*)

Length about 15 inches, tail 5·3, wing 10·9, tarsus 1·8, bill from gape 2; the tail is wedge-shaped, the outside feathers falling short of the tip of the tail by 2 inches.

The Green-billed Shearwater has been met with on the coast of Ceylon, and a roaming bird of this kind must necessarily sometimes occur in the Bay of Bengal and on the Burmese coast.

It inhabits the whole Indian Ocean, breeding in the Mauritius and neighbouring islands, where it deposits its single egg under stones and in burrows. It possesses great powers of flight, skimming along the surface of the waves and picking up putrid fish and oily refuse.

Another species of Shearwater, considerably smaller than the present, and with the whole lower plumage white, was discovered by Mr. Hume in the northern part of the Indian Ocean, and named *P. persicus*.

Mr. Hume observed between Preparis and the Cocos in the Bay of Bengal a *Prion*, but was unable to obtain and identify it. The Petrels of this genus may be known by their blue-and-white plumage.

Genus PELECANOIDES, *Lacép.*

779. PELECANOIDES URINATRIX.

THE DIVING PETREL.

Procellaria urinatrix, *Gm. Syst. Nat.* i. p. 560. *Puffinuria urinatrix*, *Gould, B. Austr.* vii. pl. 60. *Pelecanoides urinatrix*, *Jerd. B. Ind.* ii. p. 827; *Sharpe, Rep. Trans. Venus Exped.* p. 114; *Hume, S. F.* viii. p. 115.

Description.—The whole upper plumage, wings, tail and sides of the face glossy black; the superior scapulars fringed with white; the lesser wing-coverts narrowly margined with whitish; the secondaries and tertiaries likewise margined with whitish; the outer tail-feathers tipped with whitish; sides of the neck and the whole lower plumage glistening white; the black of the hind neck coming forward along the sides of the breast.

Younger birds have the fore neck and the sides of the neck mottled with brown.

A *nestling* from the Auckland Islands has an extraordinary growth of long brownish down over the whole of the lower parts; the upper plumage is similar to that of the adult, but the white margins to the various parts mentioned above are broader.

Irides very dark greyish brown; base of the cutting-edge of the upper mandible and a line along the lower edge of the under mandible blue-grey; tarsi and toes beautiful light blue; webs transparent bluish white tinged with brown; naked pouch hanging from the chin nearly black, and being very thin lies in folds like a Bat's wing. (*Gould.*)

Length about 8 inches, tail 1·9, wing 4·8, tarsus 1, bill from gape 1, the tail is quite square.

The Diving Petrel is included by Dr. Jerdon in his 'Birds of India,' on the strength of a statement made by Sundevall that he observed it in the Bay of Bengal.

This bird is found chiefly in the southern hemisphere, more especially from Australia to Cape Horn.

This diminutive sea-bird swims about on the surface of the sea, diving habitually after shrimps and small fish. It flies unwillingly, and when on the wing it skims along the surface of the water.

Order XVII. PYGOPODES.

Family PODICIPIDÆ.

Genus TACHYBAPTES, *Reich.*

780. TACHYBAPTES FLUVIATILIS.

THE LITTLE GREBE.

Colymbus fluviatilis, *Tunst. Orn. Brit.* p. 3. *Colymbus minor*, *Gm. Syst. Nat.* i. p. 591. *Colymbus philippensis*, *Bonn. Tabl. Encycl. et Méth. Orn.* i. p. 58, pl. 46. fig. 3. *Podiceps philippensis*, *Jerd. B. Ind.* ii. p. 822; *Bl. B. Burm.* p. 166; *David et Oust. Ois. Chine*, p. 512; *Anders. Yunnan Exped.* p. 702. *Podiceps minor*, *Hume, S. F.* i. p. 268; *id. Nests and Eggs*, p. 646; *Hume and Henders. Lah. to Yark.* p. 298; *Hume, S. F.* iii. p. 193; *Scully, S. F.* iv. p. 203; *Hume & Dav. S. F.* vi. p. 490; *Cripps, S. F.* vii. p. 313; *Hume, S. F.* viii. p. 115; *Oates, S. F.* viii. p. 168; *Scully, S. F.* viii. p. 364; *Oates, S. F.* x. p. 245. *Tachybaptus fluviatilis*, *List Brit. Birds, Brit. Orn. Union*, p. 204.

Description.—*Summer plumage.* Crown, nape, hind neck, chin and lores blackish brown; sides of the head and entire throat and sides of the neck rich chestnut-red; upper parts generally blackish with a grey tinge; primary-quills dark grey; short secondaries white, margined externally with dark grey; breast and flanks blackish grey; rest of the underparts silvery grey tinged with dark grey. (*Dresser.*)

In winter the chestnut-red on the head, throat and neck disappears; the chin and throat are whitish, and the sides of the head and the lower throat are tinged with buff; and the underparts become whiter.

Bill black, the gape greenish yellow; iris reddish brown; legs and feet blackish, tinged with green and paler on the inside of the tarsus.

Length about 9 inches, no tail, wing 4, tarsus 1.3, bill from gape 1.1. The female is slightly larger.

The Little Grebe is probably distributed over the whole of Burmah. I procured it at Thayetmyo, Prome and at numerous points in Southern Pegu. Capt. Wardlaw Ramsay got it at Tonghoo. Mr. Davison did not observe it in Tenasserim; but this was obviously due to accident, for Mr. Davis obtained it at Thatone, where it was apparently very abundant. Mr. Blyth records it from Arrakan.

It inhabits the whole of Europe, Africa and Asia, ranging down to Australia and New Zealand; but it is possible that *T. novæ-hollandiæ* may prove to be a distinct species, notwithstanding that Prof. Schlegel and

Mr. Dresser disallow it, in which case the south-eastern limit of the present species will be the islands of the Malay archipelago.

The Little Grebe is found in every part of the country, but chiefly in ponds and swamps covered with weeds. It is a poor flier; but it swims and dives well. I found the nest near Paghein in July, with five dull white chalky eggs. The nest is a mass of weeds floating on the surface of the water, and the female when disturbed is in the habit of covering up the eggs with a few weeds. It is a constant resident in British Burmah.

A D D E N D A.

I OMITTED to notice in their proper places some interesting notes furnished me by Mr. Shopland of Akyab, regarding the nidification of some birds in Arrakan. I take the opportunity of adding a few other remarks on the same subject which escaped my notice at the time.

23. CHÆMARRORNIS LEUCOCEPHALUS.

(Vol. i. p. 24.)

The late Mr. Andrew Anderson found the nest of this bird (S. F. iii. p. 355) in the Himalayas in May. It was a cup-shaped structure made of moss-roots and fibres and lined with hair; it was placed in a hollow on the bank of a stream. The eggs, three in number, were greenish white marked with rufous.

45. MALACIAS MELANOLEUCUS.

(Vol. i. p. 43.)

Mr. Davison found a nest of this species on Mooleyit mountain in February (S. F. v. p. 458). It was a cup made of grass, moss and leaves, and placed in a small branch of a high tree, about forty feet from the ground. The eggs, two in number, were spotless blue.

HIRUNDO FLUVICOLA.

Mr. Shopland sends me an account of the finding of some nests of this species at Akyab. The Cliff-Swallow must therefore be added to the

Burmese list. Having no specimens which I can conveniently examine at the present moment, I give Dr. Jerdon's description of this Swallow :— "Above glossy black, with some whitish edges to the dorsal feathers; crown dark rufous; rump brownish; beneath white, with black mesial streaks to the feathers of the throat and breast; the under surface of the wings pale brown; tail slightly furcate, with a small whitish spot towards the tip of the inner web of each feather. Length 4·5 inches, wing 3·5, tail 1·75."

Mr. Shopland found about ten nests in April under a bridge; some contained young birds, others fresh eggs. The nests were composed of mud and lined with grass, casuarina-leaves and feathers; the greatest number of eggs in any one nest was four, and they were white speckled with two shades of brown, chiefly round the larger end.

369. ARTAMUS FUSCUS.

(Vol. i. p. 396.)

Mr. Shopland found two nests in Arrakan at the end of April. Both were placed in cocoanut-trees close to the trunk and just below the stalks of the lowermost leaves. The nests were made of fibre.

418. CAPRIMULGUS MACRURUS.

(Vol. ii. p. 20.)

Mr. Shopland is probably the first naturalist who has found the nest of this Nightjar. He writes :—"On 20th March, 1880, I found an egg of this bird on an island off the Borongo; it was on the bare ground amongst a lot of dead leaves and under a small bush. I should not have discovered it had not the bird flown away hurriedly at my approach. A month later (27th April) I found another egg amongst the small scrub-jungle on the sea-beach at Akyab; this I discovered in the same manner as the former one. Both eggs are of a very light *café-au-lait* colour clouded with light purple; the colour reminds me of a bruise nearly healed. They have a slight gloss, and measure 1·21 and 1·13 inch in length by ·9 and ·85 in breadth respectively."

502. EUDYNAMIS MALAYANA.

(Vol. ii. p. 119.)

Mr. Shopland states that the Malayan Coël in Arrakan lays in April and May, frequently depositing two eggs in the same Crow's nest.

573. HALIAËTUS LEUCOGASTER.

(Vol. ii. p. 199.)

Mr Shopland took one egg from a nest built in a high tree in the Hospital compound, Akyab, on the 11th December; it was of a chalky white colour and very rough in texture.

615. DEMIEGRETTE SACRA.

(Vol. ii. p. 250.)

Mr. Shopland informs me that on the 19th May he had occasion to visit Oyster Island off the Arrakan coast, and that on this occasion he found eight or nine nests of the Blue Reef-Heron in a patch of thorny jungle near the centre of the island. The nests were from one to three feet from the ground, and were composed of dead sticks and leaf-stalks. No nest contained more than three eggs. The colour of the eggs was light green, and they measured on the average 1·76 by 1·28 inch.

766. STERNA BERGII.

(Vol. ii. p. 428.)

Mr. Shopland found a considerable colony of these Terns breeding on Oyster Island in May. The nests were placed, or rather the eggs deposited, at intervals of about one foot, and in no instance were more than two eggs together. The sitting birds evinced great anxiety at Mr. Shopland's approach, but were evidently very loth to leave their eggs; they shuffled about and screeched, but they would not move. The reason for this extraordinary conduct was soon apparent; the island was covered with hermit crabs, all ready, when opportunity offered, to seize upon the eggs. Mr. Shopland observed that the eggs upon this island were of two types, a larger and a smaller; but he is certain that both belonged to *S. bergii*, for he shot many birds, and no other Tern was discovered at this spot. The largest egg measured 2·4 by 1·65 inch and the smallest 2 by 1·38.

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